JOURNAL

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INDIAN MEDICAL ASSOCIATION

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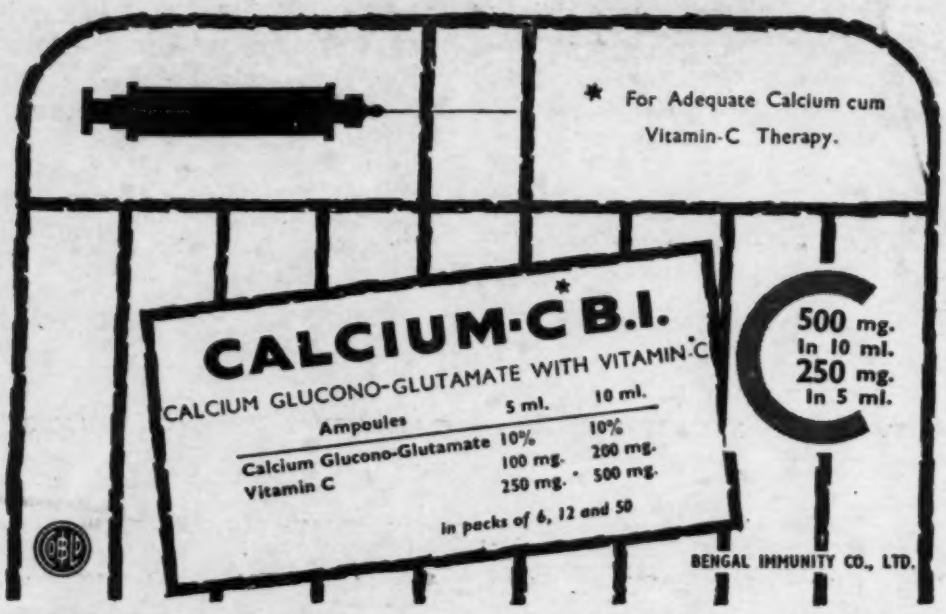
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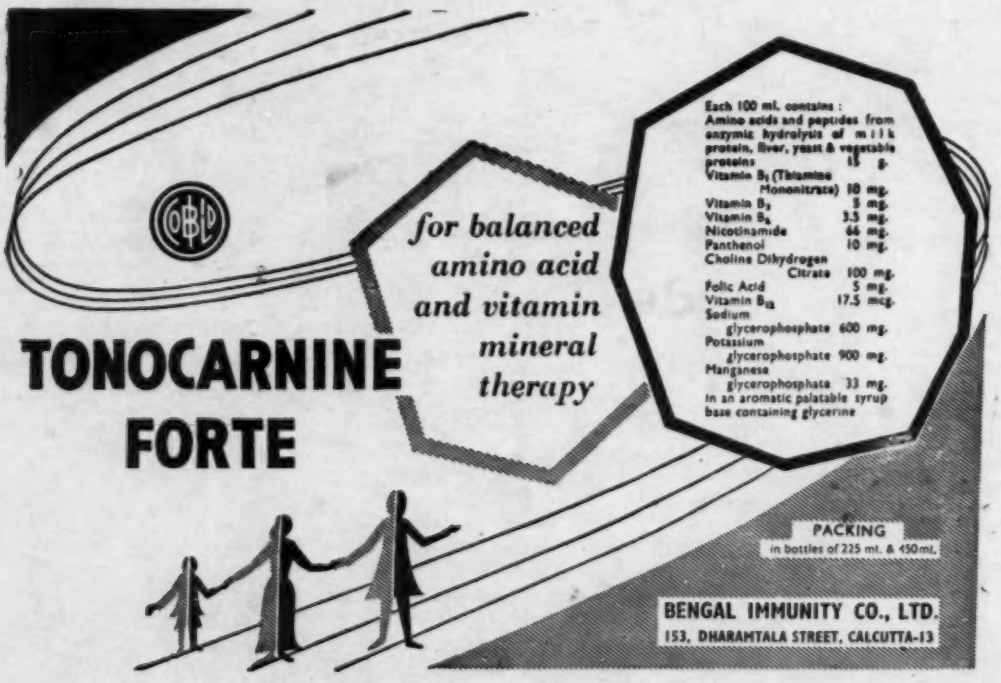
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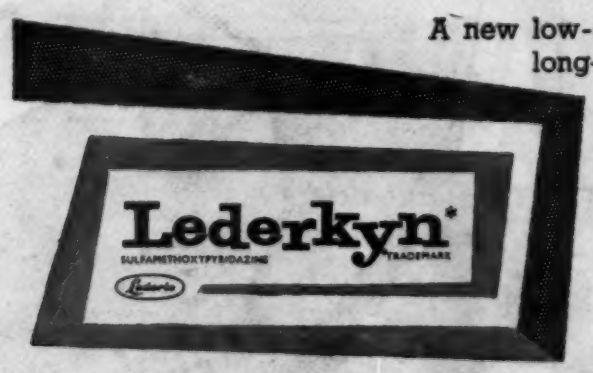

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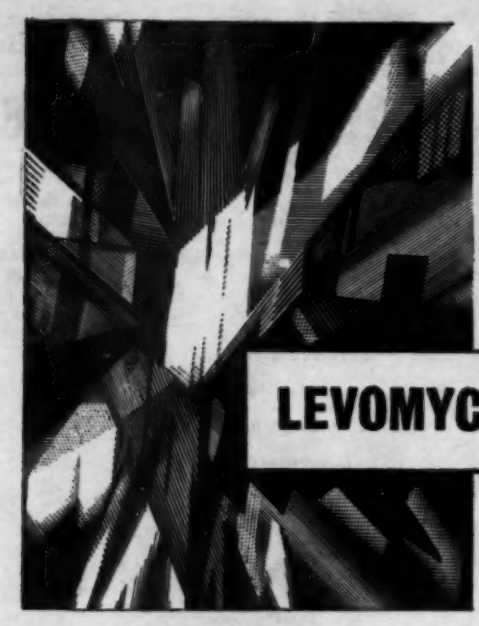

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3	no sodium or water retention—low salt diet not necessary Hartung, E. F.: J.A.M.A. *167*: 973 (June 21) 1958.
4	absence of edema Council on Drugs: J.A.M.A. *169*: 257 (January 17) 1959.
5	less likely to create electrolyte disturbance Bongiovanni, A. M., *et al.*: J. Pediat. *53*: 3 (July) 1958.
6	no secondary hypertension—no significant change in pulse, respiration, or blood pressure Shelley, W. B., *et al.*: J.A.M.A. *167*: 959 (June 21) 1958. Berntsen, C. A., Jr., *et al.*, New York Rheumatism Association, Annual Meeting, New York, April 9, 1959.
7	no excessive appetite Council on Drugs: J.A.M.A. *169*: 257 (January 17) 1959.
8	without unnatural psychic stimulation—does not stimulate and rarely depresses the mood Shelley, W. B., *et al.*: J.A.M.A. *167*: 959 (June 21) 1958. Council on Drugs: J.A.M.A. *169*: 257 (January 17) 1959.
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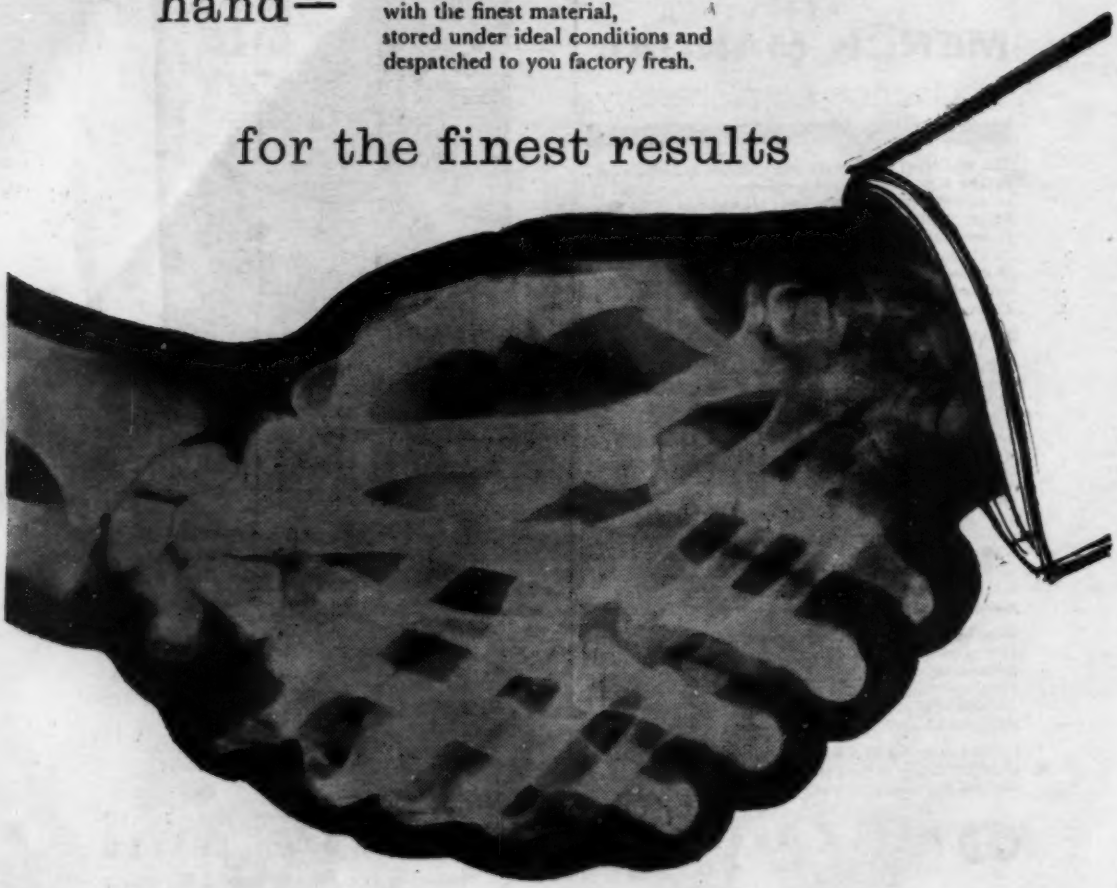

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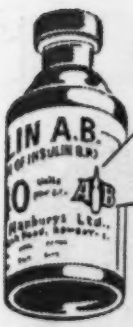

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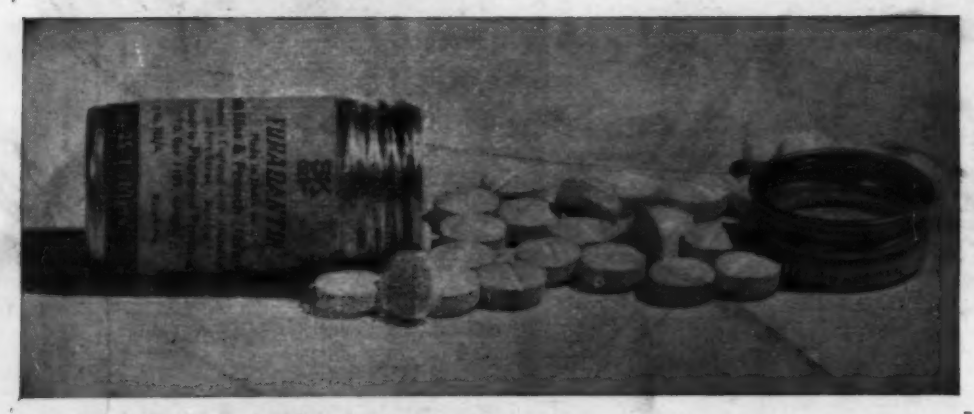

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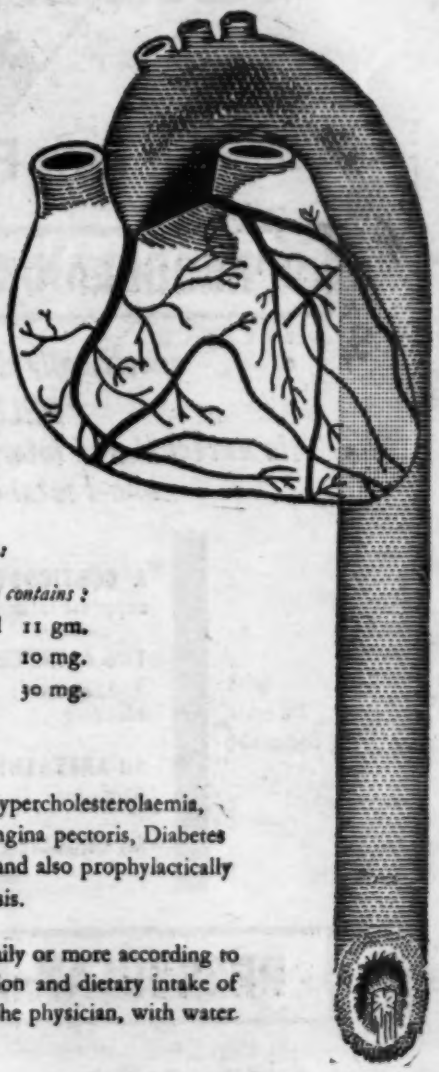

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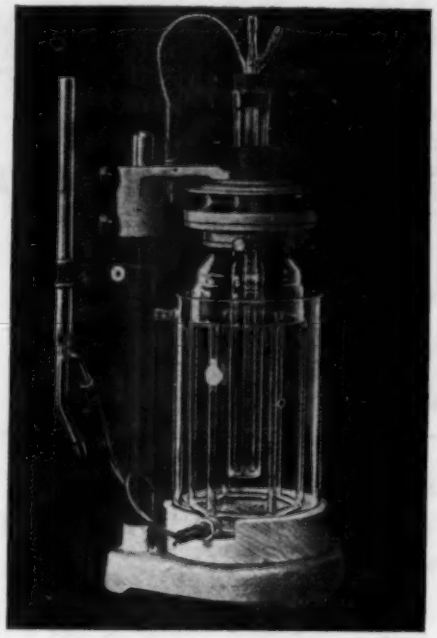

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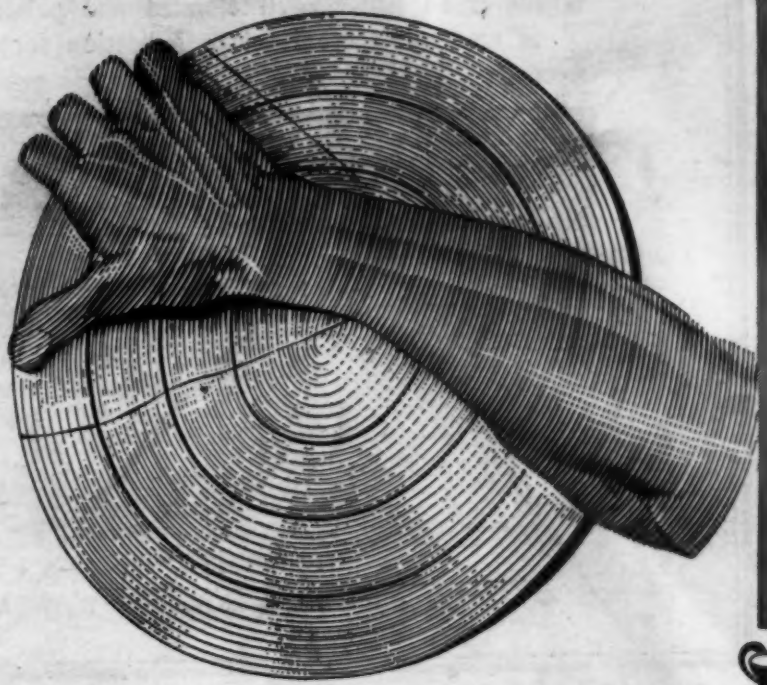

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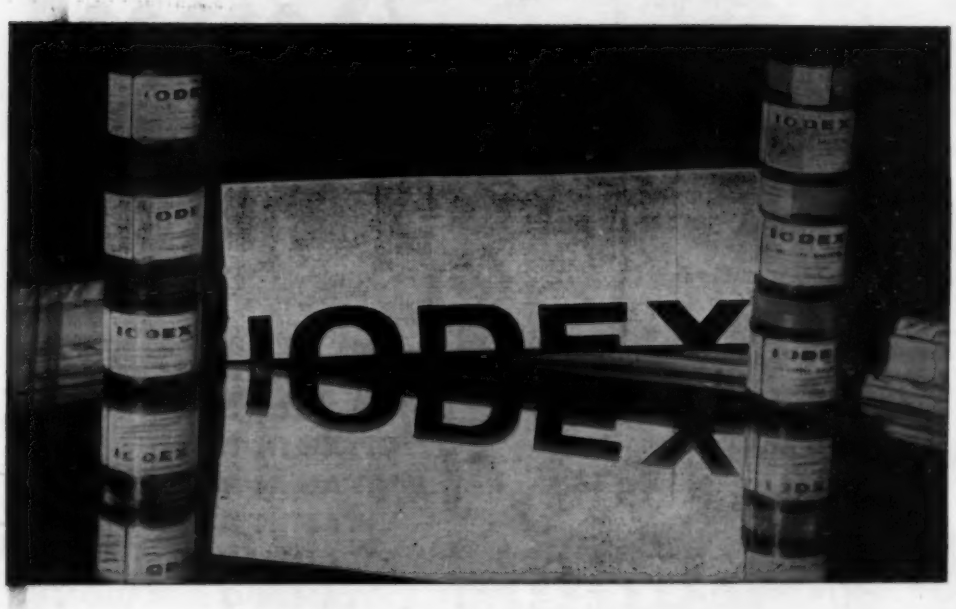

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* *Food Science* 6 (10) 241
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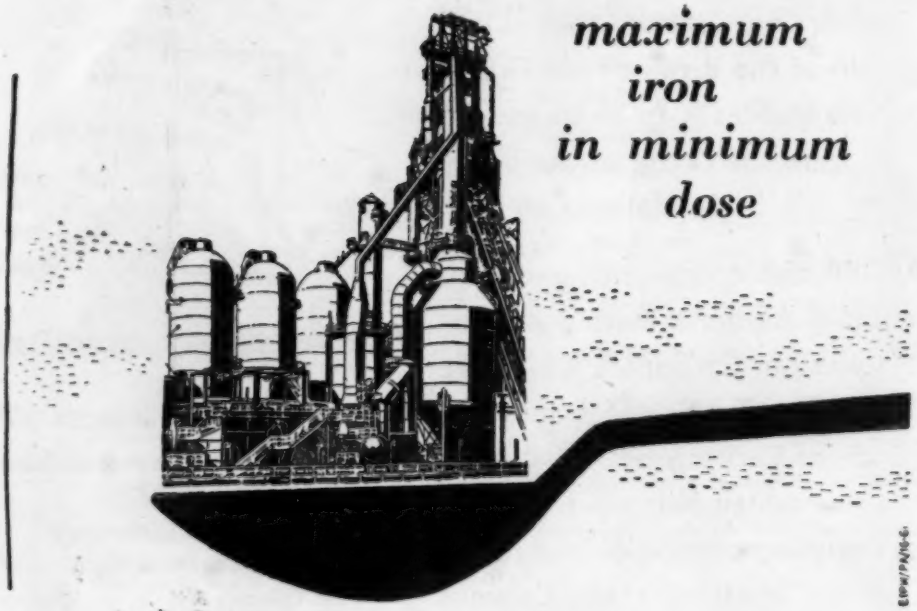

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ORIGINAL ARTICLES

TESTICULAR CHANGES IN COCKERELS FED WITH VANASPATI

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INTRODUCTION

A comprehensive study, with a view to find out any morphological changes in the tissues of experimental animals as a result of feeding them with different edible fats commonly used as cooking media in India, was undertaken. The study involved prolonged administration of some of the cooking fats to young cockerels and examination of the various organs of the birds at the end of a definite period. It was of interest to find that in the birds which died during the period of experiment, certain gross changes in the testes were very frequent. While the testes of the birds fed with the different fats were greatly enlarged, those of the chicks fed with vanaspati (hydrogenated vegetable oils) were markedly small in size. On histological examination the atrophied testes appeared normal in most respects except that no or very few spermatozoa could be seen in the seminiferous tubules. This incidental finding of azoospermia in two of the cockerels dying during the experimental period warranted an elaborate investigation to find out the effects of vanaspati and other cooking fats on the testes of cockerels.

The present paper deals with only a segment of the study which was designed to elucidate the effects of various edible fats commonly used as cooking media in India, on the tissues of the experimental animals. The testicular changes described in this paper are the incidental findings of the more comprehensive study.

Based on a paper presented at the 11th Annual Meeting of the Indian Association of Pathologists, held at Hyderabad on 1st-3rd December, 1960.

MATERIALS AND METHOD

In the original investigation several groups of pure bred Leghorn cockerels, 12 weeks old, were kept separately and fed with 'standard poultry diet' incorporated with different cooking fats, viz., sesame oil, mustard oil, groundnut oil, coconut oil, vanaspati (i.e., hydrogenated and vitaminised groundnut oil having melting point 37°C), buffalo-milk ghee and cow-milk ghee at a concentration of 5 per cent by weight. The standard poultry diet was prepared in bulk. Its composition is given in Table 1.

TABLE 1—SHOWING COMPOSITION OF THE STANDARD POULTRY DIET

Stock grain mixture :	
Wheat	5 parts
Barley	5 „
Oat	2½ „
Bengal gram	2½ „
The mixed grain was coarsely ground in grinding stones and stored as 'stock grain mixture'.	
The poultry diet consisted of :	
Stock grain mixture ...	1 part
Wheat bran	1 part
Powdered quicklime ...	2 per cent
Common salt	1 per cent
(The above poultry diet contained 3-5 per cent of fat, i.e., ether-extractable substances)	

The birds were kept in separate cages, were not allowed to mix with pullets and did not have access to any foodstuff other than what was given

to them. The food mixture and plain water were given *ad lib*. On an average each adult bird consumed approximately 300 g. of the food mixture which contained, in the experimental group, 15 g. of the cooking fat under study. The feeding was continued for a total period of 48 weeks.

Some of the chicks were sacrificed at the end of 8 weeks and others after 48 weeks of feeding. They were autopsied and the testes were removed and examined both grossly and microscopically. The histological examination consisted of study of both paraffin and frozen sections, the former after staining by haematoxylin-eosin and van Gieson's methods and the latter after staining for fats by Sudan IV (Scharlach red) stain. The dimensions and weights of each testis were also recorded.

Since morphologically abnormal and azoospermic testes were seen only in the group of cockerels fed with vanaspati in a preliminary study carried out earlier, in the latter study which was more comprehensive, an attempt was made to include, in the vanaspati group, only those cockerels which were 'fertile' as considered by the presence of mature and actively motile spermatozoa in the seminal fluid, which was expressed out in the live birds by a special technique. A slightly bent metal rod, with flattened blunt tip, was introduced into the cloaca, after the rectum had been washed clean with warm saline. The rod was then slowly withdrawn while still pressing against the back so that the vas deferens got sequeezed in the form of milking. The small drops of white fluid which oozed out of the minute sex apertures were examined under the microscope for the presence of actively motile spermatozoa. The cockerels in whom the spermatozoa could not be demonstrated were excluded from this investigation as far as practicable. At least for the vanaspati group not a single chick was selected which did not show spermatozoa in the seminal fluid. During the whole period of study, seminal fluids of the chicks were examined from time to time with a view to find out whether or not oligo- or azoospermia developed in any of them.

Results

When compared with the dimensions and weights of testes of cockerels of the control group (which did not have access to any of the cooking fats) and also with those of the normal adult birds of the colony (Table 2), it was observed that testes of all the experimental birds were markedly enlarged in the early stage, i.e., at the end of an 8-week period (Figs. 1 and 2, *vide* Plate). While enlargement of the organ was quite uniform and no deformity was seen, the actual size of the testes varied considerably, without, however, having any significant relationship with any particular fat (Table 3). Even in the same group, the size of the testes varied markedly. The microscopic examination of the enlarged testes did not reveal any abnormality, except that the lumens of the seminiferous tubules, as seen in transverse sections, were larger than those seen in the control birds. In most of the organs, minute fat globules could be demonstrated in frozen sections, but no other change in the cellularity of the tissue was evident. Evidence of active spermatogenesis was indicated by the presence of masses of mature

Table 2—Showing Physical Measurements of Testes of Normal Adult Cockerels. (50-80 weeks old)

Serial No.	Size (cm) (Length × Breadth × Thickness) (mean of two testes)	Weight (g.) (mean of two testes)
1	2·4×1·3×1·2	2·8
2	3·1×1·4×1·3	3·9
3	2·8×1·4×1·0	3·2
4	2·4×1·2×1·1	2·7
5	3·4×1·5×1·3	3·9
6	2·8×1·3×1·2	3·5
7	2·9×1·3×1·3	3·9
8	3·6×1·6×1·5	4·0
9	2·7×1·4×1·3	3·8
10	3·0×1·3×1·1	3·8
Mean	2·9×1·4×1·2	3·5

Table 3—Showing Variations in Sizes and Weights of Testes of Cockerels Fed with Different Cooking Fats for a Period of 8 Weeks

Cooking fat	No. of testes examined	Average measurements of each testis (cm.) (Length × Breath × Thickness)	Average weight of each testis (g.)
Sesame oil ...	6	5·3×2·3×1·8	9·6
Mustard oil ...	4	4·9×2·3×1·5	8·8
Groundnut oil ...	4	5·0×2·1×1·5	8·5
Coconut oil ...	4	4·0×1·8×1·4	7·5
Vanaspati ...	6	3·8×1·8×1·3	7·0
Milk-ghee (buffalo) ...	2	4·2×1·9×1·7	7·8
Milk-ghee (cow) ...	2	3·9×1·6×1·4	7·0
Control (no fat)	4	2·5×1·3×1·2	2·2
Normal birds ...	20	2·9×1·4×1·2	3·5

spermatozoa in the lumen of the seminiferous tubules. None of the cockerels had azoospermic testis.

A different picture was however found in the cockerels which were examined at a later stage of the study, i.e., at the end of 48 weeks. Except the chicks of vanaspati group, all other birds had testes of almost the same size as those of the control group, or were very slightly different. The enlargement of the testes, noticeable in the early stage was, therefore, transitory, and was perhaps caused by presence of excessive amount of fat in the diet of the birds. The organs returned to their normal size when the birds got accustomed to the high-fat diet.

The most interesting observations were made in the cockerels of the vanaspati group, in which 7 out of 8 birds had very markedly atrophic testes in comparison to those of the control group, and in contrast to the slightly enlarged testes of the birds of other experimental groups (Tables 4, 5). In the vanaspati group there was not a single chick which had testes larger than those of the control group. In fact some testes were even smaller than a bean (Table 6 and Fig. 3, *vide* Plate).

It was noted that while the dimensions of testes varied, even in the birds of the same group, the variation was not very great, and further, the variation in dimensions, except in the vanaspati group, had no relation with the particular type of cooking fat consumed by the birds. Occasionally, in a cockerel, the two testes varied considerably in dimensions and weights. No change was noticed in the appearance and consistency of the organs, which were of normal shape and softness. The testes which were very much atrophic were however quite firm.

On histological examination, except in the birds of the vanaspati group, very minor changes were found in the testes of cockerels of all other groups (Table 7).

In frozen sections fat globules could be demonstrated in the parenchyma of some of the testes of all the experimental groups, though in some, the degree of fatty infiltration was greater than in others. There was however no relation

TABLE 4—SHOWING GROSS APPEARANCE OF TESTES OF COCKERELS AFTER 48 WEEKS' FEEDING WITH VARIOUS COOKING FATS

Cooking fat	No. of chicks examined at the end of study period	No. of chicks in whom the testes were		
		larger than normal	smaller than normal	of same size as normal
Sesame oil ...	8	5	0	3
Mustard oil ...	6	3	0	3
Groundnut oil ...	6	4	0	2
Coconut oil ...	5	0	2	3
Vanaspati ...	8	0	8	0
Milk-gree (buffalo) ...	4	2	0	2
Milk-ghee (cow) ...	4	1	0	3
Control group (no fat) ...	6	2	0	4

TABLE 5—SHOWING VARIATION IN SIZES AND WEIGHTS OF TESTES OF COCKERELS FED WITH DIFFERENT COOKING FATS FOR A PERIOD OF 48 WEEKS

Cooking fats	No. of testes examined	Average measurement of each testis (cm.) (Length × Breadth × Thickness)	Average weight of each testis (g.)
Sesame oil ...	16	3·2 × 1·6 × 1·4	4·2
Mustard oil ...	12	3·5 × 1·8 × 1·4	4·8
Groundnut oil ...	12	3·8 × 1·7 × 1·4	5·7
Coconut oil ...	10	3·0 × 1·5 × 1·3	3·9
Vanaspati ...	16	1·5 × 0·7 × 0·5	1·4
Milk-ghee (buffalo) ...	8	3·1 × 1·6 × 1·3	3·5
Milk-ghee (cow) ...	8	3·0 × 1·5 × 1·2	3·2
Control group (no fat) ...	12	2·7 × 1·4 × 1·0	2·8
Testes of normal Cockerels ...	20	2·9 × 1·4 × 1·2	3·5

TABLE 6—SHOWING VARIATIONS IN SIZES AND WEIGHTS OF TESTES OF COCKERELS FED WITH VANASPATI FOR 48 WEEKS

Serial No. of cockerel	Sizes (cm.) (Length × Breadth × Thickness) (mean of two testes)	Weights (g.) (mean of two testes)
1	1·0 × 0·5 × 0·4	0·2
2	1·2 × 0·5 × 0·5	0·3
3	1·4 × 0·6 × 0·5	1·3
4	1·4 × 0·8 × 0·5	1·6
5	1·4 × 0·5 × 0·5	1·5
6	2·5 × 1·2 × 0·8	2·6
7	1·5 × 0·8 × 0·6	1·9
8	1·5 × 0·8 × 0·5	1·9
Mean	1·5 × 0·7 × 0·5	1·4
Control Group	2·7 × 1·4 × 1·0	2·8
Normal	2·9 × 1·4 × 1·2	3·5

TABLE 7—SHOWING HISTOLOGICAL CHANGES IN THE TESTES OF ADULT COCKERELS AFTER 48 WEEKS' FEEDING WITH DIFFERENT COOKING FATS

Morphological changes observed	Cooking fats given with the diet of birds							
	SO.	MO.	GO.	CO.	V.	MG(B).	MG(C).	Control
Absence of spermatozoa ...	0	1	1	0	5	0	0	0
Spermatozoa in lesser number ...	0	0	0	0	2	0	0	0
Degenerated spermatid cells ...	0	0	0	2	6	0	0	0
Absence of Sertoli's cells ...	0	0	0	1	3	0	0	0
Presence of fat globules ...	3	4	3	1	2	2	1	0
Arterial changes	0	0	2	2	6	2	1	0
No change	5	2	1	2	1	2	3	6
No. of birds studied	8	6	6	5	8	4	4	6

The figures indicate the number of birds showing the changes in the testes.
SO=sesame oil; MO=mustard oil; GO=groundnut oil; CO=coconut oil; V=vanaspati; MG(B)=milk-ghee (buffalo); MG(C)=milk-ghee (cow).

between the type of cooking fat consumed by the bird and the amount of fat globules present in the frozen sections of the testes.

In the control group, the testicular structure was more or less similar to that seen in normal adult chicks, including the presence of masses of mature spermatozoa in the seminiferous tubules. All the various types of cells which are seen in the normal testis, viz., spermatogonium cell, spermatocytes, spermatid cells, Sertoli's cells and Leydig's cell of the interstitial tissue could be easily demonstrated. In the frozen sections fat globules were not seen. Exactly similar structure was found in majority of the birds of the experimental groups which were fed with different vegetable oils and milk-ghee, except that varied amount of fat globules were seen in the interstitial tissue of the testes of those birds which were having some type of cooking fat (Fig. 4, *vide* Plate).

Characteristic lesions could however be demonstrated in the testes of almost all the cockerels which were fed with vanaspati continued for a prolonged period. The spermatozoa were conspicuous by their absence in 5 of the 8 cockerels, and were considerably reduced in 2 birds. In the testis of only one cockerel of this group mature spermatozoa could be seen in normal amount. It is interesting to note that in this particular cockerel the testes were almost normal in size and appearance. In all other birds the absence or reduction of the spermatozoa was also associated with marked degeneration of the spermatocytes and spermatid cells (Fig. 5, *vide* Plate). In some the seminiferous tubules were very compactly placed in comparison to those of normal ones, and had the appearance of immature testis. The lumen of most of the tubules were either empty or filled with degenerated cells, but not a single spermatozoon could be seen in most testes. Evidences of spermatogenesis were however still present as shown by mitotic activity in the apparently normal looking spermatogonium cells. Another interesting feature was absence of Sertoli's cells in some of the testes. In the frozen sections fat globules were not very conspicuous, their number being much less than found in the vegetable oil groups.

An important feature which was seen mostly in the vanaspati group but rarely in others were changes in the blood vessels similar to those seen in the aorta and arteries of other organs. The wall of the vessel was considerably thickened, the thickening being both in the media and in the intima (Fig. 6, *vide* Plate). At places the lining membrane of the intima was very irregular with projections of cellular tufts, and in some others empty clefts denoting presence of fat, were seen in the intima. In frozen sections minute fat globules could be demonstrated both in the intimal and medial layers. Occasionally the lumen of the artery was considerably narrowed by proliferated intimal cells, and at places there was almost complete occlusion of the lumen. While similar vascular lesions were infrequently seen in testes of birds of other experimental groups, the lesions in them were never associated with parenchymatous changes described above.

In only two cockerels of the experimental group, one fed with mustard oil and the other with groundnut oil, complete absence of spermatozoa was noticed in the lumen of the seminiferous tubules. In these two birds, however,

atempts to collect seminal fluid before the commencement of the experiment, with a view to demonstrate the presence of actively motile spermatozoa, had not been successful. It is possible that both these cockerels were inherently sterile and the spermatozoa were absent in their testes from the beginning.

Discussion

Several workers in India and abroad have carried out extensive studies on the nutritive values of different dietary fats. During the last war period, when supply of butter was limited, several experimental studies were made on the nutritive values of margarine as compared to that of butter fat. But some of the reports are very conflicting. Thus Henry *et al* (1945) observed that there was no difference in the nutritive properties of butter fat and in those of other edible vegetable fats. Many other workers are also of similar opinion and they have confirmed that after adequate fortification with vitamins, margarine and other vegetable oils, e.g., olive, groundnut, maize, cotton-seed or soya-bean oils are not inferior to butter in growth promoting qualities. They have thus concluded that the fats in butter and margarine have essentially the same nutritive value. On the other hand, some workers like Schantz *et al* (1940), Boutwell *et al* (1941), Boer and Jansen (1943) have reported that for promoting growth, butter fat is superior to margarine and other vegetable oils, even when the latter are fortified with vitamins A and D.

In this country, the relative nutritive merits of raw and hydrogenated vegetable oils on the one hand and clarified butter (e.g., milk-ghee) on the other, have been extensively studied by various workers, again with conflicting results. Thus Ray and Pal (1947) observed that the growth rates of rats fed on a suboptimal diet plus hydrogenated vegetable oils (vanaspati) were significantly lower than those fed on the same diet plus milk-ghee. Using chicks as the experimental animals, they observed symptoms of vitamin B-deficiency dermatitis and poor growth among vanaspati-fed ones but not in those having milk-ghee.

The studies in various research institutes carried out under the auspices of the Ministry of Food and Agriculture of the Government of India and the Council of Scientific and Industrial Research (C.S.I.R., 1952), showed that there was maximum gain in weight in the rats when fed with milk-ghee when compared to those fed with any other cooking fat studied, and that the gain was minimum with vanaspati. A greater degree of infertility was observed in the animals fed with the different fats but it was not determined whether the cause of sterility was in the male or in the female animals. In general it was seen that while milk-ghee was associated with the highest fertility ; other fats, e.g., vanaspati and groundnut oil did not show any significant difference in the fertility.

Comprehensive studies on changes occurring in the various tissues of the experimental animals consequent to prolonged administration of different cooking fats do not appear to have been made by any worker, less so on the reproductive organs. While studying atherosclerosis produced experimentally in the chicks by feeding them with cholesterol, Dauber and Katz (1943) encountered a high incidence of small, undeveloped testes in the chicks fed with cotton-seed oil and also in those fed with cholesterol suspended in cotton-seed oil. Similar lesions were also seen in the chicks which were underfed. Whether the atrophy of the testes were due to cotton-seed oil or to under-feeding resulting from overfeeding with a fat, could not be definitely established, but since the sexual underdevelopment occurred in all birds except in the control group, cholesterol by itself could not be incriminated for it, neither could the blood vessel changes which occurred only in the cholesterol-fed birds have any relation.

In the present study, cholesterol was not administered to any of the experimental birds which were fed with normal poultry diet mixed with various cooking fats under study. The lesions noticed in the testes of the birds could therefore be attributed to the effects of a particular fat, specially when the birds of the control group living under similar environments and having exactly a similar diet without any of the cooking fats, did not show any morphological change.

It seems likely that the sexual overdevelopment, so evident in the initial stage in all the chicks excepting in those of the control group, is the result of over-consumption of fat and there does not appear to exist any relation between the hypertrophy of the testes and any particular cooking fat, the degree of hypertrophy being almost similar in all the groups. There are evidences to show that the hypertrophied organs contain considerable amount of fat, and it is probable that the enlargements were solely due to fatty infiltration in the interstitial and germ cells. Histologically, no change other than presence of excessive fat could be demonstrated. The seminiferous tubules were normal in appearance and were suggestive of normal spermatogenesis with

development of mature spermatozoa in all the groups.

On prolonged administration of the fats, more pronounced and interesting morphological changes were observed as evidenced from microscopical studies. The changes are characteristically more pronounced in the vanaspati group than in others. While the testes of chicks of all the groups were considerably reduced in size in comparison to those seen in the initial stage, those of the vanaspati group were markedly atrophied. The testes were smaller and firmer than the normal ones and microscopically many had a solid appearance with tiny undeveloped tubules containing not a single spermatozoon. The frequent occurrence of azoospermia or oligospermia in the chicks of vanaspati group and not in other groups, is an important observation deserving great consideration. Similar defects in spermatogenesis was seen, only very infrequently, in the chicks of other experimental groups, but in none of the control group.

The reason of the testicular changes and defective spermatogenesis is not very clear. Certain drugs have recently been shown to have marked anti-fertility effect. These are mostly radiomimetic chemicals having chemically reactive alkylating groups. Thus, Hendry *et al* (1951) while investigating the effects of various ethyleneamino derivatives no the growth of neoplastic tissues observed that the chemical triethylene melamine (Tretamine or briefly TEM) could produce morphologically demonstrable changes to germinal epithelium of the testes. These consisted of lesions varying from loss of spermatogenesis with cell desquamation in a few tubules to complete atrophy of the testes. Later Jackson and Bock (1955) and Bock and Jackson (1957) observed that TEM produced temporary sterility in male rats, and the damages caused by the chemical was on the late spermatocytes or on early spermatids only and not on the spermatogonia nor on the maturing spermatozoa. Thus the infertile animals still continued to produce morphologically normal-looking motile spermatozoa. Oligo- or aspermia was never produced. They observed that the anti-fertility effect of the ethyleneamino compounds with 3 alkylating groups was maximum and least with compounds having one such group. Steinberger *et al* (1959) observed that while in smaller doses TEM produced no histologically demonstrable effect on germinal epithelium of testis of rats, though subfertility or infertility was produced, in higher doses a destruction of the spermatogonia and spermatocytes followed by a maturation depletion of the germinal epithelium was noticed. Jackson *et al* (1959) observed that another radiomimetic chemical of sulphonyloxyalkanes group, viz., busulphan ($CH_3.SO_2.O.(CH_2)_4.O.SO_2.CH_3$) has very high selective action on spermatogenesis, but contrasting with the action of tretamine. Busulphan is a nucleotoxic alkylating tumour inhibitor, but it also interferes with the development of spermatogonia, and frequently causes extensive damage, with complete destruction of the germinal epithelium resulting in oligo- or aspermia. Thus the action of the chemical is mainly on the early stage of spermatogenesis, preventing development of new spermatogonia. The seminiferous epithelium is systematically depleted of spermatogonia, spermatocytes, spermatids and finally spermatozoa.

Spitz (1948) had reported testicular degeneration in men treated with nitrogen mustard. Landing *et al* (1949) and Kindred (1952) demonstrated that the alkylating agents of the nitrogen mustard group produced testicular damage in experimental animals. Kindred (1952) observed severe damage to germinal epithelium of the rat testis. The damage was however not localised to any particular type of cells, but there were conspicuous changes in the spermatogonia and spermatocytes. In most severely damaged testes, tubules containing only Sertoli's cells and spermatogonia could be seen.

It would thus be evident that though spermatogonia are the most radiosensitive cells of the germinal epithelium, these are relatively insusceptible to the various radiomimetic compounds. The cells of later phases of spermatogenesis are however very sensitive to interference by these substances. It may also be recalled that most of the chemicals having anti-fertility effects, viz., TEM, busulphan, are also carcinogens. There is however no relation so far seen between carcinogenicity and anti-fertility activity of any substance.

The observations made in the present study have certain similarity to those found in the testes of the rats after administration of an alkylating chemical. In both instances selective damage to the germinal epithelium affecting the spermatogenesis were seen. In the present study, selective damage to the cells of spermatogenesis, was seen in the testes of cockerels fed with vanaspati. The selectivity was characterised by damage to the cells of later stage of spermatogenesis, i.e., the spermatids and the spermatozoa, resulting in oligo- or azoosperima. The cells of the earlier stage, i.e., spermatogonia and primary spermatocytes appear to remain unaffected. The reason for this selective action is not clear but since the hydrogenated vegetable oil has no chemically reactive

alkylating groups, its anti-fertility effect could not possibly be compared to that of TEM, busulphan and others.

It is well known that growth, functional integrity and activities of the testis are controlled by various factors, viz., gonadotrophic hormone of the anterior pituitary, vitamins A and E, etc. The sterility effect of the common pea (*Pisum sativum*) is said to be due to the active principle of its oil, *m*-xylo-hydroquinone, which interferes with the action of gonadotrophin and progesterone (Sanyal, 1949, 1960). Whether hydrogenated vegetable oil contains some such substance which has destructive or interfering action on the above vitamins or hormones, or whether there is adverse effect on the utilisation of the hormones or of the vitamins, is yet to be determined. In general development and appearance, however, none of the birds of the vanaspati group was in any way different from the birds of the other groups, or had any evidence of hormonic disbalance or vitamin deficiency (Fig. 7).

Klinefelter *et al* (1942) have described an uncommon syndrome in which the seminiferous tubules are severely damaged leaving only the germinal epithelium and Sertoli's cells and resulting in aspermia, and without affecting the interstitial cells. This syndrome is supposed to be caused by loss of some factor which has inhibitory control over the anterior pituitary. The testicular changes seen in this syndrome are almost similar to those found in the cockerels during the present study, suggesting thereby that the 'inhibitory factor' might get destroyed by the effects of hydrogenated fats.

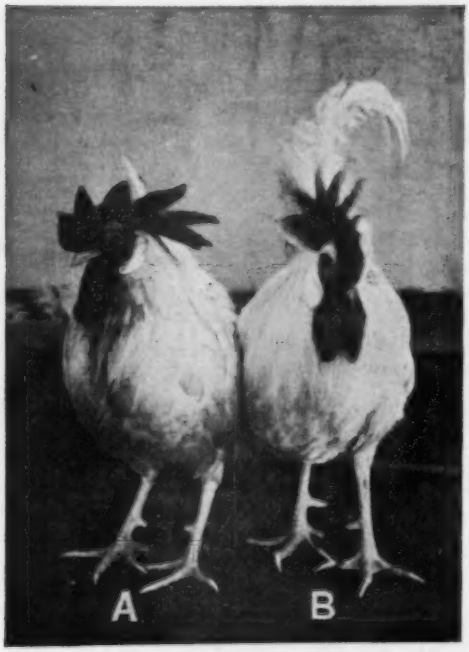

FIG. 7—SHOWING COCKERELS FED WITH COOKING FATS FOR A PERIOD OF 48 WEEKS. (A = FED WITH SESAME OIL; B = FED WITH VANASPATI.) NO DIFFERENCE BETWEEN THE TWO IS NOTICEABLE. THERE IS NO EVIDENCE OF HORMONIC DISTURBANCE OR VITAMIN DEFICIENCY IN ANY

All vegetable oils contain certain steroids which have structure very similar to that of other steroids of physiological importance, e.g., cholesterol, androgens, corticoids, etc. During the process of hydrogenation, the steroids of the vegetable oils may get structurally changed to some compound that might adversely affect the steroids like androgens which prevent degeneration of the seminiferous tubules and maintain spermatogenesis.

It is also to be considered whether or not the blood vascular changes observed in the vanaspati-fed chicks are in any way related to the testicular changes observed. As in many organs, the blood vessels of the testis was also found markedly thickened and frequently obliterated. This by obstructing the blood flow might adversely affect the nutrition of the organ resulting in degeneration of the cells of the seminiferous tubules. In many instances Sertoli's cells had disappeared along with other cells of the germinal epithelium. Since Sertoli's cells are responsible for nutrition of the spermatozoa, their absence might be related to degeneration of the spermatozoa, leading to oligo- or aspermia, observed in many cases.

While no definite explanation for the occurrence of the various changes observed in the testes of vanaspati-fed cockerels can be given at this stage, there are ample evidences already available which impress the necessity of further continuance of the study with the object of finding out the exact mechanism of the changes observed and to find out the exact factor which is present in the vanaspati and is responsible for the various morphological changes in the organ.

SUMMARY

Certain morphological changes have been observed in the testes of cockerels fed with various cooking fats, the maximum being in the birds fed with vanaspati, a hydrogenated vegetable oil. The changes varied with the duration of the period of feeding, the most characteristic ones at the early period, being marked enlargement of the testes

without any adverse effect on the seminiferous tubules. On prolonged feeding with vanaspati, the testes got markedly atrophic with degeneration of some of the cells of the seminiferous tubules and oligo- or azoospermia. Such changes were not seen in chicks fed with vegetable oils or milk-ghee. The mechanism of the testicular changes and their relation to vanaspati has not been established.

ACKNOWLEDGMENT

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REFERENCES

BOCK, M. AND JACKSON, H.—*Brit. J. Pharmacol.*, **12** : 1, 1957.

BOER, J. AND JANSEN, B. C. P.—*Chem. Abstr.*, **37** : 4444, 1943.

BOUTWELL, R. K., GEYER, R. P., ELVEHJEM, C. A. AND HART, E. B.—*J. Dairy Sci.* **24** : 1027, 1941.

C.S.I.R.—Investigations on Composition and Nutritive Value of Vanaspati, 1952. The Council of Scientific & Industrial Research, New Delhi.

DAUBER, D. V. AND KATZ, L. N.—*Arch. Path.*, **36** : 473, 1943.

HENDRY, J. A., HOMER, R. F., ROSE, F. L. AND WALPOLE, A. L.—*Brit. J. Pharmacol.*, **6** : 357, 1951.

HENRY, K. M., KON, S. M., HILDITCH, T. P. AND MEARA, M. L.—*J. Dairy Res.*, **14** : 45, 1945.

JACKSON, H. AND BOCK, M.—*Nature*, **175** : 1037, 1955.

JACKSON, H., FOX, B. W. AND CRAIG, A. W.—*Brit. J. Pharmacol.*, **14** : 149, 1959.

KINDRED, J. E.—*J. Exp. Zool.*, **121** : 225, 1952.

KLINEFELTER, H. F., JR., REIFENSTEIN, E. C., JR., AND ALBRIGHT, F.—*J. Clin. Endocrinol.*, **2** : 615, 1942.

LANDING, B. H., GOLDEN, A., NOE, H. A.—*Cancer*, **2** : 1075, 1949.

RAY, S. N. AND PAL, A. K.—*Sci. & Cult.*, **12** : 494, 1947.

SANYAL, S. N.—*Ibid*, **15** : 159, 1949.

Idem—*J. Indian M. A.*, **35** : 552, 1960.

SCHANTZ, E. J., ELVEHJEM, C. A. AND HART, E. B.—*J. Dairy Sci.*, **23** : 181, 1940.

SPITZ, S.—*Cancer*, **1** : 383, 1948.

STEINBERGER, E., NELSON, W. O., BOCCABELLA, A. AND DIXON, W. J.—*Endocrinology*, **65** : 40, 1959.

CLINICAL EVALUATION OF A NEW CARDIAC GLYCOSIDE : ACETYL DIGITOXIN

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In the management of congestive cardiac failure, a whole range of digitalis preparations has been used and evaluated. With the availablity of a new cardiac glycoside, acetyl digitoxin, we were prompted to conduct clinical trials and evaluate its therapeutic utility. The drug has been used in other countries. It has been pointed out that acetyl digitoxin is a useful addition to the list of cardiac glycosides and possesses very little toxicity. Literature on the use of this new cardiac glycoside is very scanty, and at the beginning of the present clinical trials no published report from this country was available. Since then Damany and Kamat (1960) have reported their observations on a series of 25 patients treated by acetyl digitoxin.

Derived from *Digitalis lanata*, acetyl digitoxin is obtained as an intermediate product in the degradation of lanatoside-A by removal of one molecule of glucose. A white crystalline powder, it is the only cardiac glycoside obtained by controlled enzymic action. Its gastro-intestinal rate of absorption has been assessed to vary from 67 to 100 per cent (Löffler *et al*, 1954 ; Goldfarb *et al*, 1956). The rate of dissipation is less than that of lanatoside-C, being 14 per cent as reported by Löffler *et al* (1954). Thus, it is a suitable drug for maintenance therapy.

To achieve 10 per cent reduction in ventricular rate in atrial fibrillation, it takes 10 to 20 minutes and 2 to 4 hours on intravenous and oral administration respectively. As judged by its effects on the failing canine heart-lung preparation, it has 1·4 times the potency of digitoxin (Hafkenschiel and Cerletti, 1954). Löffler *et al* (1954) report the loss of digitalis effect to vary from 4 to 14 days after stoppage of its administration. Among the untoward effects, gastro-intestinal symptoms predominate and precede other toxic effects. Common toxic manifestations are anorexia, nausea, vomiting, diarrhoea, giddiness, amblyopia and extrasystoles. Also, the toxic symptoms disappear earlier than with any other drug of the digitalis group, once the drug is stopped.

Fig. 1—Photograph showing hypertrophied testes of cockerel fed with vegetable oils for 8 weeks.

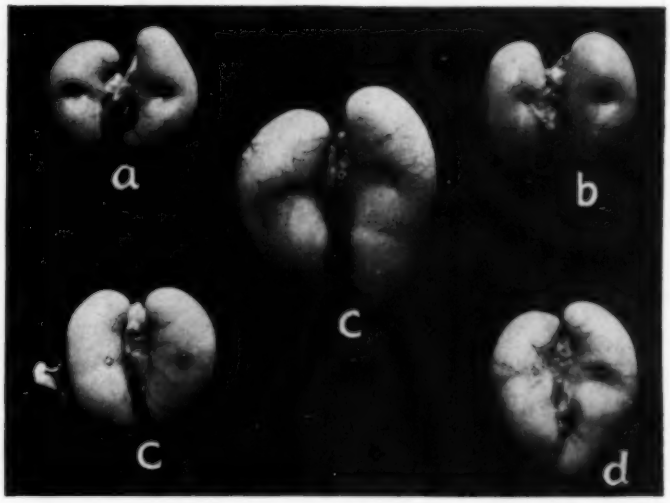

Fig. 2—Photograph showing testes of cockerels fed with different cooking fats for a period of 8 weeks. (a=control ; b=milk-ghee ; c=vanaspati ; d=mustard oil ; e=sesame oil).

Fig. 3—Photograph showing testes of cockerels fed with different cooking fats for a period of 48 weeks. (a=control ; b & c=vanaspati ; d=sesame oil ; e=mustard oil).

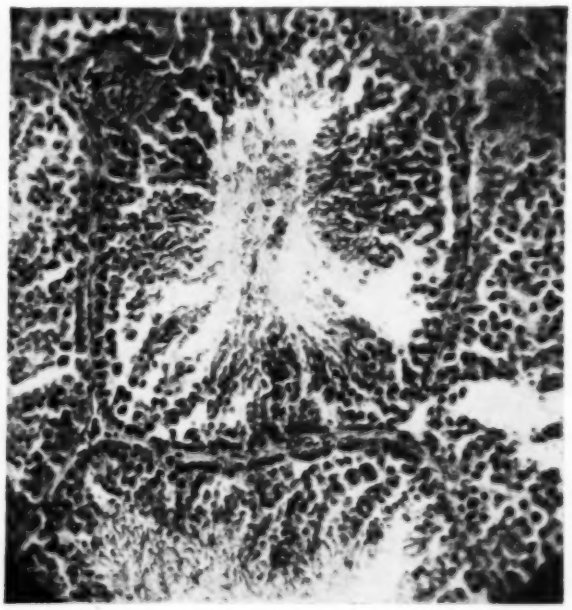

Fig. 4—Microphotograph showing section of testis of cockerel of the vegetable (sesame) oil group. All types of cells of seminiferous tubules are present, and active spermatogenesis is evidenced by presence of masses of mature spermatozoa in the lumen of the tubules (high power).

Basu—*Testicular Changes in Cockerels Fed with Vanaspati* (p. 103)

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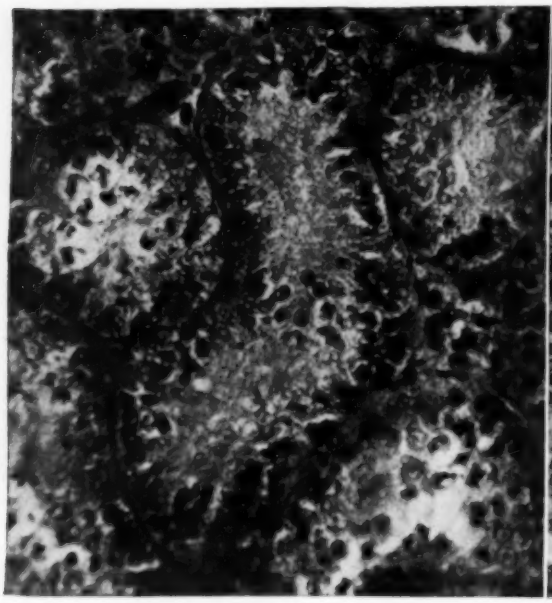

Fig. 5—Microphotograph showing testis of cockerel fed with vanaspati for 48 weeks. The normal architecture is greatly obliterated with degeneration of all types of cells of spermatogenesis. The lumen of the tubule is filled with debris of degenerated cells. Not a single spermatozoon can be seen.

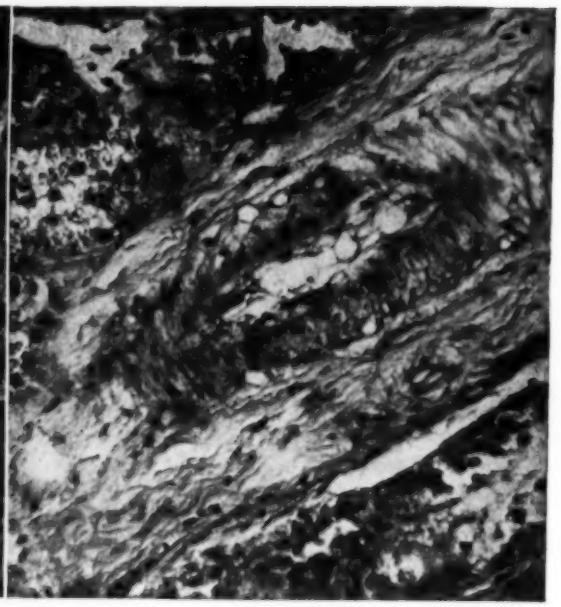

Fig. 6—Microphotograph of testis of vanaspati-fed chick (48 weeks), showing a thickened blood vessel with irregular endothelium. The thickening of the intima is more marked. A large number of fat glubules are seen in the wall of the vessel. The lumen is partially obliterated.

BASU—*Testicular Changes in Cockerels Fed with Vanaspati (p. 103)*

Fig. 1—Photograph of cut surface of spleen, treated with iodine solution and H_2SO_4, showing typical 'sago spleen' appearance (Case 2).

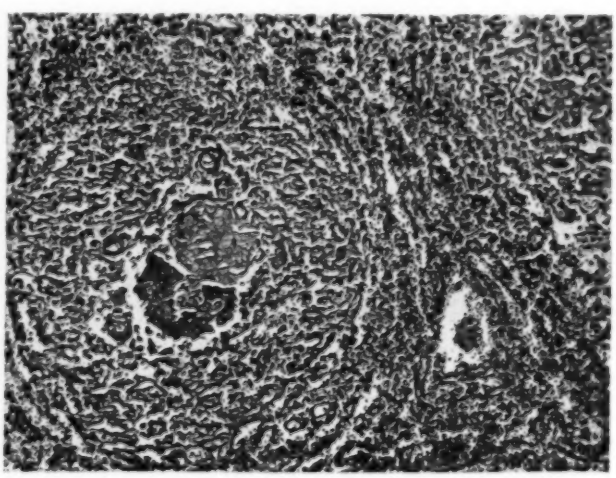

Fig. 2—Microphotograph showing amyloid substance masking the Malpighian body — only a few rows of surviving lymphocytes in the periphery of the remnants of the Malpighian body are seen (Case 2). (H. & E. × 120)

REDDY *et al*—*Amyloidosis in Guntur (p. 120)*

Material and Method

Material for this study was drawn from the indoor patients of District Hospital, Bareilly. Forty patients, thirty-one males and nine females, suffering from congestive cardiac failure of various aetiology were included in the study. Age variation was from 15 to 62 years, there being one child aged three years. The basic aetiology of the series is shown in Table 1.

Table 1—Showing Distribution of Cases According to Pathological Conditions Present

Pathological condition	No. of cases
Chronic rheumatic valvular disease ...	21
Chronic cor pulmonale	8
Hypertensive heart disease	3
Postmyocardial infarction	3
Diphtheritic carditis	1
Syphilitic aortic incompetence	2
Unknown condition	2
Total ...	40

All the patients had established congestive heart failure with mild to generalised oedema. All of them were put on bed rest, a salt restricted diet and diuretics in the form of initial parenteral mercurials followed by oral chlorothiazide. Clinical details of the series are given in Table 2. Three different dosage regimes of acetyl digitoxin were used. Twenty-five cases received 0·2 mg. orally every eight hours; twelve cases received 0·4 mg. orally every eight hours; while three cases of severe decompensation had the drug intravenously in doses of 0·2 mg. every eight hours. This dosage schedule was used till the patients were digitalised and total digitalising dose thus added up. Digitalisation was assessed by noting the symptoms, ventricular rate and other physical signs. Maintenance dose was 0·2 mg. daily in 25 patients, 0·4 mg. daily in 14 patients and only 0·1 mg. daily (Case 6) in one patient. The patients were observed under this maintenance therapy for an average of three weeks, though some of them were kept on for over two months, and one died on the eighteenth day of treatment.

Observations

The results in the three different dosage schedules are given in Tables 3, 4 and 5, which list total digitalising dose, period of digitalisation, and toxic manifestations observed during this period. These tables show clearly that the total dose as well as the period of digitalisation varied considerably, independent of other factors like age, sex, degree of failure, etc. But a closer inspection reveals that in the first schedule, i.e. 0·2 mg. eight hourly by oral route (25 patients were thus studied), not one could be under control at the end of first twenty-four hours; while in the second schedule, viz 0·4 mg. eight hourly, two out of twelve were digitalised; and two out of three were digitalised at the end of the same period when the drug was given intravenously.

In schedule I (Table 3) the period of digitalisation varied from the end of 48 hours to 96 hours; 10 patients out of 25 needed a total of 1·8 mg. of acetyl digitoxin by the end of 72 hours, there being no toxic reactions in this group. One patient (Case 6, *vide* Table 2) suffering from diphtheritic carditis was put on 0·1 mg. 8 hourly for 48 hours and was not under proper control, developing occasional vomiting and extrasystoles. He was then put on 0·1 mg. daily as maintenance dose for subsequent days, but died on the 18th day. This case may be included among those who developed toxicity, though progress of diphtheritic carditis to a stage of decompensation is nearly always bad and eventually fatal.

In the second schedule (Table 4), two patients were digitalised at the end of 24 hours; total dose for each being 1·2 mg. But the maximum number, i.e. 8 out of 12 patients required a digitalising dose of 2·4 mg.; none having any side-effects. One patient needing 3·6 mg. developed anorexia, vomiting and alternating extrasystole, while the other who had 4·8 mg. was free from any untoward effect.

Three patients of severe cardiac decompensation were given the drug intravenously. Two of them were given 0·2 mg. I.V., 8-hourly for 3 injections and were successfully digitalised; while the third required four injections. None had any untoward effect due to the drug.

In total, six patients of the series exhibited toxic reactions to the drug. All had gastro-intestinal symptoms like anorexia (6 cases), nausea (6 cases), vomiting (2 cases), diarrhoea (1 case), while only two developed extrasystoles. In all these cases the drug had to be stopped for 24 to 48 hours and restarted in the maintenance schedule without return of any side-effects. One patient died eventually and has already been referred to. While on maintenance therapy, three patients developed gastro-intestinal symptoms during the third week. Incidentally, all of them were put on a maintenance dose of 0·4 mg. a day. The drug was discontinued for 24 to 48 hours, restarted at 0·2 mg. a day and again raised to 0·4 mg. daily. Thus nine patients developed one or the other side-effects.

TABLE 2—SHOWING CLINICAL DATA OF 40 CASES

S. No.	Name	Age & Sex	Clinical diagnosis	Digitalisation Before		Digitalisation After		Acetyl digitoxin (dose/24 hrs.)	Period of digitalisation (hours)	Side-effects
				Heart rate	Oedema	Heart rate	Oedema			
1.	RN	28 M	Rh. M.S. with M.I.	110	+++	90	++	·2 mg. 8-hourly	48	—
2.	P	35 M	Rh. A.I.	100	++	84	++	Do.	48	—
3.	LD	22 F	Rh. M.S. with M.I.	104	++	90	+	Do.	48	—
4.	LDS	54 M	M.I.	100	—	86	—	Do.	48	—
5.	RD	48 M	Do.	108	—	84	—	Do.	48	—
6.	PK	3 M Ch	Acute diphtheritic carditis	140	Slight	120	—	·1 mg. 8-hourly	48	Expired after 18 days of treatment
7.	BC	18 M	Rh. M.I.	100	++	86	+	·2 mg. 8-hourly	72	—
8.	B	23 F	Rh. M.S. with M.I. and Rh. A.I.	120	++	100	+	·2 mg. 8-hourly	72	—
9.	TR	45 M	Chronic cor pulm.	106	++	80	+	Do.	72	—
10.	BC	60 M	Do.	100	++	82	+	Do.	72	—
11.	DL	40 M	Do.	110	+++	94	+	Do.	72	—
12.	BSV	60 M	Syph. A.I.	104	+	84	Slight	Do.	72	—
13.	SG	30 M	Unknown	130	+++	100	++	Do.	72	—
14.	ON	50 M	M.I.	106	+	82	Slight	Do.	72	—
15.	OPT	48 M	Hypertension	98	+	78	Slight	Do.	72	—
16.	ID	18 F	Rh. M.S. with M.I.	130	++	100	+	Do.	72	—
17.	CD	28 F	Rh. M.S. with M.I.	120	++	100	+	Do.	96	—
18.	L	22 M	Rh. M.S. with Rh. M.I. and A.I.	110	+	80	Slight	Do.	96	Nausea
19.	AH	34 M	Syph. A.I.	104	+	82	Slight	Do.	96	—
20.	RP	50 M	Hypertension	100	+	78	Slight	Do.	96	—
21.	ZU	42 M	Chronic cor pulm.	94	+++	74	+	Do.	96	Nausea
22.	AA	30 M	Do.	102	++	88	+	Do.	96	—
23.	HCL	26 M	Rh. A.I.	116	++	90	+	Do.	96	—
24.	MC	30 M	Rh. M.I.	100	+++	74	+	Do.	120	Nausea & vomiting
25.	LS	25 M	Rh. M.S. with M.I. with Rh. A.I.	130	+++	86	++	Do.	120	Vomiting, Diarrhoea, Extrasystole
26.	SG	62 M	Hypertension	110	++	82	+	·4 mg. 8-hourly	48	—
27.	CB	27 F	Rh. M.S. with M.I.	100	++	82	+	Do.	48	—
28.	JL	38 M	Rh. M.I.	104	+	80	Slight	Do.	24	—
29.	KNS	18 M	Rh. M.S. with M.I.	98	+	76	Slight	Do.	24	—
30.	KW	20 F	Rh. A.I.	106	++	90	+	Do.	48	—
31.	AR	31 M	Rh. M.S. with M.I.	130	+++	94	+	Do.	72	Alternating Extrasystole Nausea, anaemia
32.	TA	15 M	Rh. A.I.	100	+	84	Slight	Do.	48	—
33.	RS	45 M	Unknown	120	++	90	—	Do.	96	—
34.	IA	60 M	Cor pulmonale	110	+++	92	+	Do.	48	—
35.	CB	45 M	Do.	104	++	86	+	Do.	48	—
36.	P	52 F	Do.	100	++	80	Slight	Do.	48	—
37.	SD	20 M	Rh. M.S. with M.I.	104	++	86	+	Do.	48	—
38.	KS	18 M	Rh. M.S. M.I. Rh. A.I.	140	+++	90	+	·2 m. 8-hrly., I.V.	48	—
39.	DM	9 M	Rh. M.S., Rh. A.I.	142	++	100	+	Do.	24	—
40.	LB	23 F	Rh. M.S. with M.I.	150	++	94	+	Do.	48	—

Rh.M.S. = Rheumatic mitral stenosis; M.I. = Myocardial infarction; Rh.A.I. = Rheumatic aortic incompetence; Rh.M.I. = Rheumatic mitral incompetence.

TABLE 3—SHOWING RESULTS WITH ACETYL DIGITOXIN IN DOSES OF 0·2 MG. ORALLY 8-HOURLY

At the end of (hours)	Acetyl Digitoxin (mg.)	No. of cases	Toxicity
24	0·6	—	—
48	1·2	6	One irregularly controlled. Died
72	1·8	10	—
96	2·4	7	Anorexia and nausea in 2 cases
120	3·0	1	Anorexia, nausea and vomiting
144	3·6	1	Same with extrasystole

TABLE 4—SHOWING RESULTS WITH ACETYL DIGITOXIN IN DOSES OF 0·4 MG. ORALLY 8-HOURLY

At the end of (hours)	Acetyl digitoxin (mg.)	No. of cases	Toxicity
24	1·2	2	—
48	2·4	8	—
72	3·6	1	Anorexia, nausea and alternating extrasystole
96	4·8	1	—

TABLE 5—SHOWING RESULTS WITH ACETYL DIGITOXIN IN DOSES OF 0·2 MG. I.V. 8-HOURLY

At the end of (hours)	Acetyl digitoxin (mg.)	No. of cases	Toxicity
24	0·6	2	—
32	0·8	1	—

COMMENTS

While conscious of the fact that simultaneous clinical comparison with other standard cardiac glycosides along with a trial of the kind we have presented, would have given a clearer idea in respect of the therapeutic efficacy of the new glycoside under consideration, we refrained from making the data unnecessarily voluminous as the effects of the standard glycosides are too well known.

The literature on acetyl digitoxin in the digitalising schedule is not in agreement. While Gold (1957), Goldfarm *et al* (1956) and Doherty (1955) advocate single dose digitalisation by 1·6 to 2·2 mg. of acetyl digitoxin ; others like Dann *et al* (1957) Löffler *et al* (1954) and Brill *et al* (1956) advocate 24 hour digitalisation with 1·6 to 3·0 mg. of the drug. Further, other authors like Crouch *et al* (1956), and Damany and Kamat (1960) prefer slow digitalisation with the average corrected digitalising dose varying from 1·4 to 2·8 mg. While not disagreeing with calculation of corrected digitalising dose as suggested by Crouch *et al* (1956), we feel that it serves no useful purpose, and that the total digitalising dose itself is sufficient to give an idea of the bulk required to achieve therapeutic effect.

Though a different digitalising schedule has been employed, it appears from our observations that the dose is almost or nearly the same as described by other authors irrespective of whether the method employed was a single dose digitalising or one of the slower digitalising schedules. It is clear from Tables 3 and 4 that the range of total digitalising dose varied from 1·2 to 2·4 mg. in both dosage schedules in nearly all patients. However, it must be mentioned that individual variations did influence the digitalising range, e.g., one patient required as much as 4·8 mg. We are in favour of the second schedule, i.e., 0·4 mg. orally every eight hours till digitalised, because the majority of patients are likely to be put on maintenance at the end of 24 to 48 hours. This does not mean that any other dosage schedule has shortcomings—only the period of digitalisation will be affected.

Toxic effects of the drug, as stated earlier, were mild and easily reversible. Though the period of observation on maintenance was short, we feel that the drug is more reliable than the commonly used glycoside digoxin, and is to some extent superior in maintenance to lanatoside-C.

SUMMARY

Forty patients of congestive heart failure were treated with acetyl digitoxin in three different dosage schedules. The total digitalising dose in the majority was found to vary from 1·4 to 2·8 mg. Therapeutic efficacy has been assessed and considered superior to digoxin, the maintenance is easy with fewer risks. It is concluded that acetyl digitoxin is a valuable addition to the known cardiac glycosides.

ACKNOWLEDGMENTS

The authors are grateful to Dr. K. M. Lal, Director, Medical and Health Services, U.P., for granting permission to publish the results of this trial. Thanks are also due to the nursing staff of the Cardiology Unit, who helped in maintenance of case records and excellent care of the patients.

REFERENCES

BRILL, I. C., BURGNER, P. R. AND DAVID, N. A.—*Ann. Int. Med.*, **44** : 707, 1956.

CROUCH, R. B., HEJTMANCIK, M. R. AND HERRMANN, G. R.—*Am. Heart J.*, **51** : 609, 1956.

DAMANY, S. J. AND KAMAT, G. R.—*Indian J. M. Sc.*, **14** : 619, 1960.

DANN, S., GUTNER, L. B., BERNSTEIN, A., BERGER, A. R. AND KUPPERMAN, H. S.—*N. Y. State J. Med.*, **57** : 239, 1957.

DOHERTY, J. E.—*Am. Pract. & Digest Treat.*, **6** : 1836, 1955.

GOLD, M. H.—*Arch. Int. Med.*, **100** : 209, 1957.

GOLDFARB, M., THORNER, M. C. AND GRIFFITH, G. C.—*Am. J. M. Sc.*, **231** : 186, 1956.

HAFKENSCHIEL, J. H. AND CERLETT, A.—*J. Pharmacol. Exper. Therap.*, **110** : 23, 1954.

LÖFFLER, W., ESSELLIER, A. F. AND FOSTER, G.—*Am. Heart J.*, **47** : 898, 1954.

A SURVEY OF SARCOIDOSIS

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The many systems involved in sarcoidosis have led to reports from various authorities, often drawing attention to but one aspect, such as eyes, skin or lungs. It is sometimes difficult to compare these various series, for there are few uniform diagnostic criteria, apart from histological data and even these are occasionally lacking. Moreover, the difference between active and chronic sarcoidosis is not always emphasised and this leads to a still greater divergence of opinion on the natural history.

In this series, an effort has been made to correlate the clinical picture with the histology, radiology, biochemistry and haematology in an attempt to find out reproducible objective tests, which could provide a yardstick for comparison of different series. A preliminary report on this subject has been already published (Gupta, 1960).

MATERIALS AND METHOD

The 30 patients included in this series were admitted to a large general hospital in London, between 1956 and 1959 and followed up at the two associated chest clinics and at the outpatient departments of the same hospital. Patients adequately investigated were included. To avoid inclusion of 'local sarcoid tissue reaction' (Symmers, 1951 ; James, 1959), every patient had to have some signs of generalised disease (cf. radiological abnormality in the lung) over and above the histological evidence of sarcoid tissue at one or more sites of the body.

The series was subdivided as follows :

Group 1—9 patients with bilateral hilar lymphadenopathy but having no clinical evidence of sarcoidosis.

Group 2—5 patients with erythema nodosum and bilateral hilar lymphadenopathy.

Group 3—11 patients with diffuse pulmonary involvement, with or without hilar lymphadenopathy but having no clinical evidence of sarcoidosis elsewhere.

Group 4—5 patients with clinical evidence of generalised sarcoidosis. These features include skin lesion (3 cases), hepatosplenomegaly (3 cases), iridocyclitis (2 cases), generalised lymphadenopathy (2 cases) and parotid gland swelling (1 case).

Each patient was admitted to the hospital for clinical assessment. Routine physical examination was succeded by some of the following investigations (the figures in parentheses denote the numbers tested) :

Total and different counts of white blood cells (30) ; haemoglobin value (30) ; erythrocyte sedimentation rate, Westergen method (30) ; sputum, laryngeal swabs and gastric lavage for acid-fast bacilli (26) ; total plasma proteins, by Kjeldahl method—Varley, 1958 (25) ; paper electrophoresis of plasma proteins (24) ; serum calcium by Clark and Collip's method, 1925 (21) ; daily excretion of urinary calcium on a mixed diet by Shohl and Pedley's method, 1922 (9) ; Mantoux test to a strength of 100 tuberculin units, unless positive to a weaker dilution (30). Bilirubin, thymol turbidity and alkaline phosphatase (King and Armstrong, 1934) were estimated in 16. Serial chest x-rays were taken in every case to assess the course of the disease. The histological evidence of sarcoidosis was obtained from different tissues as scalene node or any other enlarged lymph nodes (14), liver (18), and the site of Kveim tests (Kveim, 1941) in 19 cases. In 5 patients the biopsy material was obtained from bronchus (Benedict and Castleman, 1941), conjunctiva (Crick *et al*, 1955) and other tissues (James, 1956).

Nineteen patients in this series received no systemic treatment (Table 1). Most of the treated group (8 out of 11) had a combination of steroids (usually prednisone or its analogues, 15-30 mg. daily for about 3 months) and anti-tuber-

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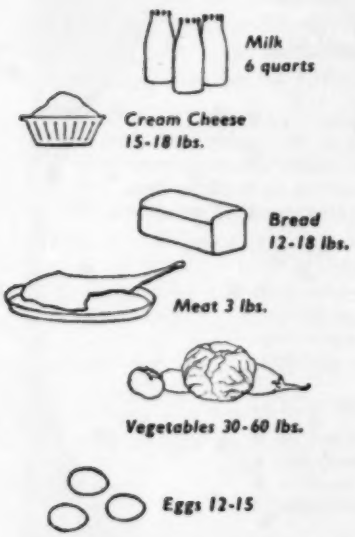

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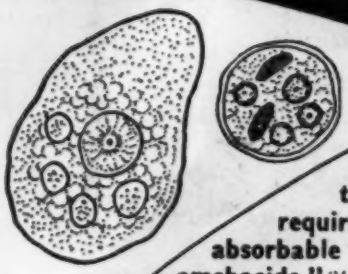

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TABLE 1—SHOWING THERAPY USED

Group	Total No. of cases	No. of cases not treated	Anti-tuberculous drugs alone	Steroids alone	Steroids and anti-tub. drugs
1	9	8	—	—	1
2	5	5*	—	—	—
3	11	4	1	1	5
4	5	2*	—	1	2
Totals	30	19	1	2	8

* Denotes occasional cases treated with local steroids.

culous drugs (a combination of streptomycin, isoniazid and PAS in the conventional dosage, for 3 months or more). In 3 patients steroids were used for more than 6 months.

RESULTS

Sex, race and age—16 of the 30 patients were men (Table 2); they constituted the majority in group 1 just as women predominated in group 3. The series was largely British (16 patients) but there were 6 Negroes, 7 Irish and one Italian.

The ages at onset of the disease varied from 19 to 63 years (Table 2). The mean age was

TABLE 2—SHOWING AGE AT ONSET AND SEX INCIDENCE

Group	Total No. of cases	Male	Female	Mean age at onset (in years)
1	9	8	1	27·6
2	5	2	3	28
3	11	4	7	32·3
4	5	2	3	42
Totals	30	16	14	(Range 19 to 63)

TABLE 3—SHOWING PRESENTING SYMPTOMS

Symptoms	Total No. of cases	Groups 1	2	3	4
Asymptomatic ...	5	4*	—	1	—
Gastrointestinal ...	24	4	5	10	5
Respiratory ...	22	5	3	10	4
Constitutional ...	20	3	5	7	5
Generalised aches and arthralgia ...	7	—	5	—	2
Sore throat ...	6	1	3	—	2
Others ...	3	—	—	1	2

* Includes 3 cases with recent respiratory illness (see text).

below 30 years in groups 1 and 2, and above it in groups 3 and 4.

Symptoms and signs (Table 3)—A variety of non-specific constitutional symptoms such as malaise, lassitude, loss of weight, pyrexia, night sweats, etc. were prominent in this series, specially in groups 2 and 4. Symptoms were least common in group 1, in which routine chest radiography had often disclosed the abnormality and only retrospective 'leading questions' elicited symptoms; 3 of these asymptomatic cases had a vague respiratory illness (characterised by pyrexia, productive cough and aches over the whole body) within the previous 3 months. Constitutional upset and arthralgia typified group 2 whereas respiratory symptoms predominated in group 3. Sore throat occured in 3 of 5 patients with erythema nodosum.

Radiology—All patients in groups 1 and 2 showed bilateral hilar adenopathy only, as did 4 in group 3. The remainder in group 3 and all cases in group 4 had radiological evidence of diffuse pulmonary involvement in the form of reticulation, nodulation or fibrosis. In 3 patients, the parenchymal involvement was predominantly unilateral but abnormal appearance was always evident in the other lung.

Bone cysts were noted in only two cases of group 4, one with lupus pernio and the other with persistent cutaneous plaques.

Tuberculin tests—Only 12 patients (40 per cent) failed to react to 0·1 ml. of 1 : 100 Old Tuberculin (Table 4), and 2 of these were also unresponsive to depôt tuberculin. One patient initially positive to 10 units, became a non-reactor following steroid therapy, although the reverse phenomenon was more commonly observed.

TABLE 4—SHOWING RESULTS OF MANTOUX TEST AND HAEMATOLOGY IN 30 CASES

Group	Total No. of cases	Raised E.S.R. 20 mm. & more	Leucopenia <5,000/c.mm.	Leucocytosis >10,000/c.mm.	Anaemia	Negative to 100 T.U.
1	9	1	1	—	—	5
2	5	5	—	1	2	1
3	11	7	2	—	1	5
4	5	5	2	2	—	1
Totals	30	18 (60%)	5 (16%)	3 (10%)	3 (10%)	12 (40%)

Haematology—5 patients (16 per cent) showed transient leucopenia ranging from 2,200 to 4,800/c.mm. and 3 (10 per cent) had leucocytosis (11,400, 14,600 and 11,000/c.mm. respectively). Eosino-

philia was not found in this series. 3 patients (10 per cent) were anaemic (Table 4) with haemoglobin levels of 68, 77 and 78 per cent respectively (2 in group 2 and 1 in group 3). They were considered unrelated examples of hypochromic, microcytic anaemia as all of them responded quickly to oral iron therapy.

The erythrocyte sedimentation rate (Table 4) was normal in all but one patient in group 1 and usually elevated in the other three groups. The highest level was noticed in group 2 (in two, it exceeded 100 mm./1st. hour) and the level gradually returned to normal in 6-8 weeks without treatment. The abnormal figures in group 3 (usually below 40 mm./1st. hour) subsided often spontaneously during a period of 3-6 months. In group 4, the level was persistently abnormal (usually 60 mm. or less) with some periodic fluctuation.

Biochemistry (Table 5)—Anti-streptolysin titre was estimated in four patients in group 2, 3 of them had sore throat also. No streptococci could be demonstrated in the throat swabs and the level of the titre was always normal (i.e. below 200 units/ml.).

TABLE 5—SHOWING RESULTS OF BIOCHEMICAL INVESTIGATIONS: (FIGURES IN PARENTHESES DENOTE NO. OF CASES TESTED)

Group	Total No. of cases	Raised total protein (>8·2 g. %)	Raised globulin (α_1, α_2 or γ)	Raised serum calcium (>11 mg. %)	Raised urinary calcium (>300 mg. daily in men; >250 mg. daily in women)	Raised alk. phos. (>14 units)
1	9	— (7)	1 (8)	2 (8)	2 (5)	1 (7)
2	5	— (5)	3 (5)	1 (1)	— (—)	— (—)
3	11	1 (8)	6 (7)	2 (8)	1 (3)	1 (5)
4	5	2 (5)	4 (4)	— (4)	1 (1)	3 (4)
Totals	30	3 (25)	14 (24)	5 (21)	4 (9)	5 (16)

Total plasma proteins were always normal in groups 1 and 2, but abnormally high in 2 cases in group 4 and one in group 3. Electrophoretic analysis, however, routinely showed abnormality in groups 3 and 4, except a solitary case in the former group. Only one case in group 1 and three in group 2 showed similar abnormality (which comprised of raised levels of alpha$_1$, alpha$_2$ and/or gamma globulins).

Only 5 cases had hypercalcaemia (two in groups 1 and 3 each, and 1 in group 2). Hypercalciuria was found in 4 patients (one each in groups 3 and 4 and two in group 1). In two patients (one each in groups 3 and 4) hypercalciuria persisted in spite of a normal serum calcium level. In two patients (both in group 1) repeated estimations showed subsidence of hilar adenopathy, hypercalcaemia and hypercalciuria during a period of 6 months.

Among the liver function tests, only alkaline phosphatase was raised in 5 (one each in groups 1 and 3, and 3 in group 4). Highest level (26 K.A. units) was found in a case in group 1.

Histology (Table 6)—Kveim tests and histological confirmations were undertaken in 19 cases, using a reliable antigen. The biopsy was positive in each patient.

TABLE 6—SHOWING NO. OF CASES YIELDING SARCOID TISSUE BY VARIOUS TECHNIQUES (FIGURES IN PARENTHESES DENOTE NO. OF CASES TESTED)

Group	Total No. of biopsies	Kveim test	Liver biopsy	Lymph node biopsy	Other sites
1	13 (17)	5 (5)	5 (6)	3 (6)	— (—)
2	5 (5)	4 (4)	1 (1)	— (—)	— (—)
3	18 (21)	7 (7)	6 (8)	5 (5)	— (1)
4	11 (13)	3 (3)	3 (3)	3 (3)	2 (4)
Totals	47 (56)	19 (19)	15 (18)	11 (14)	2 (5)

Liver biopsy (18 cases) was 100 per cent successful in group 4. One patient in group 1 and 2 in group 3 failed to show sarcoid tissue in spite of an adequate specimen. There was no complication in this series due to this test.

Biopsy of scalene node or any enlarged lymph nodes (14 cases) proved successful in each case tested in groups 3 and 4. Only 3 of 6 cases of group 1 showed positive result.

Biopsy was obtained (5 cases) from bronchus, conjunctiva and skin. Only 2 cases with some persistent cutaneous eruption had positive results from the latter site.

Treatment and follow-up (Table 1)—All cases in groups 1 and 2 (except 2 in the former group) had spontaneous resolution of the hilar adenopathy within a year. One case in group 2 developed some transient mottling in one lung after 18 months. Another case in group 2 had iritis later but responded to local therapy with steroids. Two cases in group 1 showed no improvement and one of them developed mottling in lung fields which responded to combined steroids and anti-tuberculous drugs. Eight out of 11 cases in group 3 showed resolution of the disease in a year and of them 3 had no

treatment. None in group 4 showed complete resolution of the disease radiologically.

Steroids (with or without anti-tuberculous drugs) were usually given to cases with more severe symptoms. The immediate clinical and radiological response was often dramatic. Ultimately this group did not fare any better than the untreated cases.

Discussion

In spite of a large amount of clinical, experimental and epidemiological work (Longcope and Freiman, 1952 ; Nethercott and Strawbridge, 1956 ; Cummings *et al*, 1956 ; James, 1959), the aetiology of sarcoidosis remains unknown. The minimum criteria for a diagnosis of sarcoidosis are the histological proof of sarcoid tissue from any organ with evidence of involvement of other parts of the body (James and Thompson, 1959) as 'local sarcoid tissue reaction' is quite a different clinical entity (Symmers, 1951 ; James, 1959).

An analysis of the results suggests that most of the positive laboratory tests are non-specific ; nevertheless, several observations need emphasis.

Mostly young people in their third decade develop bilateral lymphadenopathy with or without erythema nodosum. In the former group males predominate. The trend is reversed in the latter group (James, 1959). Generalised sarcoidosis is commoner among the older patients.

Hilar lymphadenopathy cause minimal symptoms unless accompanied by erythema nodosum. In the latter condition, the patient suffers from an acute, though transient, illness with marked arthralgia, sore throat and constitutional symptoms. Clinically, this group is hard to differentiate from erythema nodosum due to haemolytic streptococcus infection (Gupta, to be published) but negative throat swabs, absence of raised antistreptolysin titre, and presence of hilar adenopathy with positive histological evidence for sarcoidosis may help. There is little justification to invoke a special syndrome of unknown aetiology, characterised by erythema nodosum, arthralgia and bilateral lymphadenopathy (Rajsuriya *et al*, 1959). Contrary to usual belief (Lemaistre, 1959), presence of respiratory symptoms does not always signify gross involvement of the parenchyma of lungs.

Radiological examination for bone cysts in hands and feet is rarely of help, except in cases with generalised disease with persistent cutaneous eruption (James, 1959).

Response to tuberculin test does not enter into the definition of sarcoidosis (Hinshaw and Garland, 1956); 60 per cent of this series had positive tests. Some of the negative reactors become responsive to depôt tuberculin (James and Pepys, 1956). James (1959) has shown that patients with erythema nodosum are more frequently positive to tuberculin.

Eosinophilia, stressed by some authors (Hinshaw and Garland, 1956) is regarded as uncommon.

Erythrocyte sedimentation rate (Reisner, 1944) is closely related to various clinical groups. Very high figures (exceeding 100 mm./1st hour) were found in erythema nodosum group and these subsided spontaneously in a few weeks. Patients with diffuse pulmonary involvement or with generalised disease also had high values and the abnormality persisted in the latter group in spite of treatment. Cases with hilar adenopathy alone usually had normal figures.

Estimation of total plasma proteins (Fisher and Davis, 1942) is of no help in the stage of hilar adenopathy with or without erythema nodosum. In the latter cases, however, electrophoresis often shows raised alpha or gamma globulins. Hyperglobulinaemia with alteration of albumin : globulin ratio is rarely seen, except in advanced generalised sarcoidosis in whom electrophoresis is always abnormal.

Studies on abnormal calcium metabolism in this disease have been reported, although opinions differ as regards the actual mechanism (Anderson *et al*, 1954 ; Jackson and Dancaster, 1959). Hypercalciuria (Pyrah, 1958 ; Hodgkinson and Pyrah, 1958) with or without hypercalcaemia may be of more diagnostic help than hitherto believed (specially in asymptomatic cases with hilar adenopathy only). The abnormal calcium metabolism may subside spontaneously in certain patients.

Though alkaline phosphatase level is raised in some cases, there is little correlation between the level and the clinical groups. The level remained normal in one case with bone cysts, while the highest figure in this series (26 K.A. units) was obtained in a case with hilar adenopathy.

Histology of skin, from the site of Kveim test (Kveim, 1941 ; James and Thomson, 1955) is probably the most helpful laboratory test available at present (specially if a reliable antigen is used). In the stage of hilar adenopathy it may be of the greatest benefit, as liver biopsy (Menghini, 1957 ; Norris *et al*, 1958) or scalene node biopsy (Daniels, 1949 ; Norvit *et al*, 1952 ; Perry, 1959) may become negative. In the generalised cases all three methods are equally sensitive. Because of the ease and safety of the procedure in an experienced hand, liver biopsy should be routinely used in the diagnosis of sarcoidosis.

Patients with hilar adenopathy have a good prognosis and in most cases the disease undergoes

spontaneous resolution. James (1959) has also stressed the benign course in cases with erythema nodosum. Even many patients with diffuse pulmonary involvement get spontaneous clearing. Steroids are useful in some selected cases with acute, progressive disease and their indications have been discussed by James (1956). Though antituberculous drugs are of no use in sarcoidosis (James and Thomson, 1959), these must be used in conjunction with steroids in cases with co-existent or previous history of tuberculosis.

Summary

A series of 30 cases with histologically proved sarcoidosis is analysed. The patients are divided into 4 groups: first, those with hilar adenopathy only; second, those with bilateral hilar lymphadenopathy and erythema nodosum; third, those with diffuse parenchymal involvement; and fourth, those with clinically generalised sarcoidosis. An attempt is made to correlate the radiology, haematology, biochemistry, histology and cause of disease with the clinical groups.

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References

Anderson, J., Harper, C., Dent, C. E. and Philpot, G. R.—*Lancet*, **2**: 720, 1954.

Benedict, E. B. and Castleman, B.—*New England J. Med.*, **224**: 186, 1941.

Clark, E. P. and Collip, J. B.—*J. Biol. Chem.*, **66**: 461, 1925.

Crick, R., Hoyle, C. and Mather, G.—*Brit. M. J.*, **I**, 954, 1955.

Cummings, M. M., Dunner, E., Schmidt, R. H., Jr., and Barnwell, J. B.—*Postgrad. Med.*, **19**: 437, 1956.

Daniels, A. C.—*Dis. Chest.*, **16**: 360, 1949.

Fisher, A. M. and Davis, B. D.—*Bull. Johns Hopkins Hosp.*, **71**: 346, 1942.

Gupta, S. K.—*Lancet*, **I**: 1411, 1960.

Hinshaw, H. C. and Garland, L. H.—Diseases of the Chest, 1st ed. 1956, Saunders, Philadelphia, p. 561.

Hodgkinson, A. and Pyrah, L. N.—*Brit. J. Surg.*, **46**: 10, 1958.

Jackson, W. P. U. and Dancaster, C.—*J. Clin. Endocrinol.*, **19**: 658, 1959.

James, D. G.—*Brit. M. J.*, **2**: 900, 1956.

Idem—*Quart. J. Med.*, **28**: 109, 1959.

James, D. G. and Pepys, J.—*Lancet*, **I**: 602, 1956.

James, D. G. and Thomson, A. D.—*Quart. J. Med.*, **24**: 49, 1955.

Idem—*Lancet*, **1**: 1057, 1959.

King, E. J. and Armstrong, A. R.—*Canad. M. A. J.*, **31**: 76, 1934.

Kveim, A.—*Nord. med.*, **9**: 169, 1941.

Lemaistre, C. L.—in Cecil and Loeb's Textbook of Medicine, 10th ed., 1959. Saunders, Philadelphia.

Longcope, W. T. and Freiman, D. G.—*Medicine*, **31**: I, 1952.

Menghini, G.—*Rass. Fisiopat. clin.*, **7**: 756, 1957.

Nethercott, S. E. and Strawbridge, W. G.—*Lancet*, **2**: 1132, 1956.

Norris, T. S. M., Singh, M. M. and Montuschi, E.—*Ibid*, **2**: 560, 1958.

Norvit, L., Carstensen, B., Odelberg, A. and Wahlgren, F.—*Nord. med.*, **48**: 1099, 1952.

Perry, D. C.—*Med. J. Australia*, **2**: 207, 1959.

Pyrah, L. N.—*Proc. Roy. Soc. Med.*, **51**: 183, 1958.

Rajasuriya, K., Nagaratnam, M. and Somasundaram, M.—*Brit. J. Dis. Chest.*, **53**: 314, 1959.

Reisner, D.—*Am. Rev. Tuberc.*, **49**: 289 and 437, 1944.

Shohl, A. T. and Pedley, F. G.—*J. Biol. Chem.*, **50**: 537, 1922.

Symmers, W. St. C.—*Am. J. Path.*, **27**: 493, 1951.

Varley, H.—Practical Clinical Biochemistry, 2nd ed. 1958, Heinemann., London, p. 183.

AMYLOIDOSIS IN GUNTUR

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Amyloid change in tissues was first described in 1840 by Schleiden and Vogel quoted by Skinner (1949). Two years later Rokitansky (1842) reported cases of amyloid disease for the first time under the title of 'lardaceous disease', in consequence of the pallor and translucent greasiness of the affected organs. In 1853 Virchow adopted the term amyloid and developed an amyloid theory based on amyloid reaction. Amyloidosis is an obscure condition. Its chemical nature, aetiology, and pathogenesis are poorly understood. The nature and exact site of the formation of amyloid still remain to be clarified and are the subjects of continued clinical and experimental research. The frequent association of amyloid with extensive tuberculous or choronic suppurative lesions tempted pathologists to postulate the view that it may

Fig. 3—Microphotograph showing glomeruli replaced by homogeneous acellular amyloid mass. Metachromasia of the amyloid is well seen (Case 2).

Fig. 4—Photograph showing nodular surface of the liver, as well as perihepatitis (Case 3).

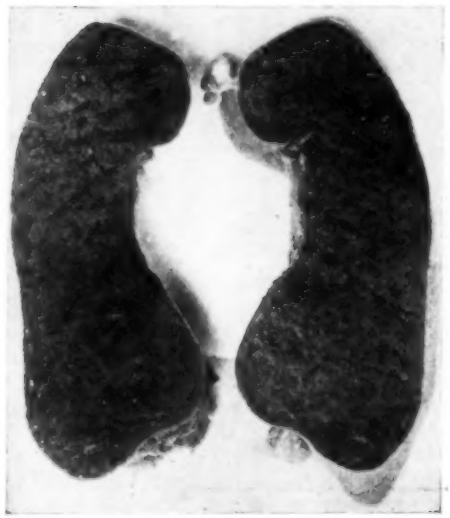

Fig. 5—Photograph of the cut surface of spleen, treated with iodine solution and H_2SO_4, showing typical 'sago spleen' appearance (Case 3).

Fig. 6—Microphotograph showing an area of necrosis surrounded by fibrosis and round cell infiltration suggesting gumma, and adjacent to this is amyloid deposit. (H. & E. × 200)

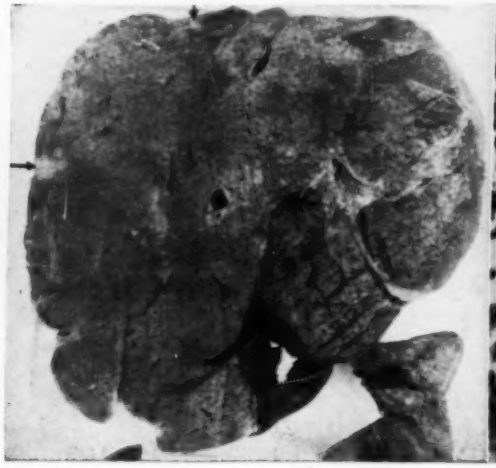

Fig. 7—Photograph of cut surface of liver showing micro-gummatous foci (marked by arrow).

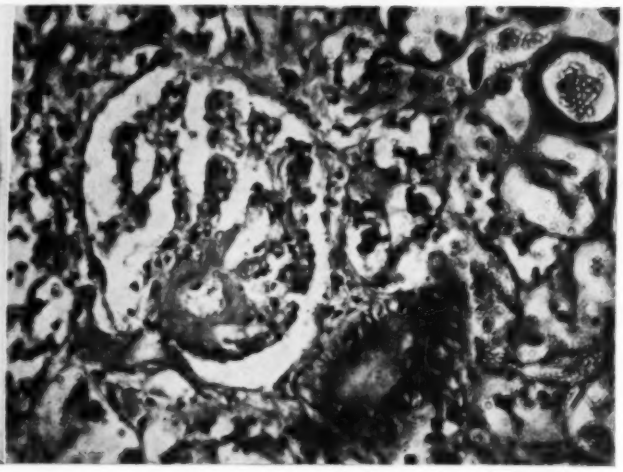

Fig. 8—Microphotograph showing amyloid infiltrating a segment of the glomerulus, as also the vessel wall (Case 3). (H. & E. × 270)

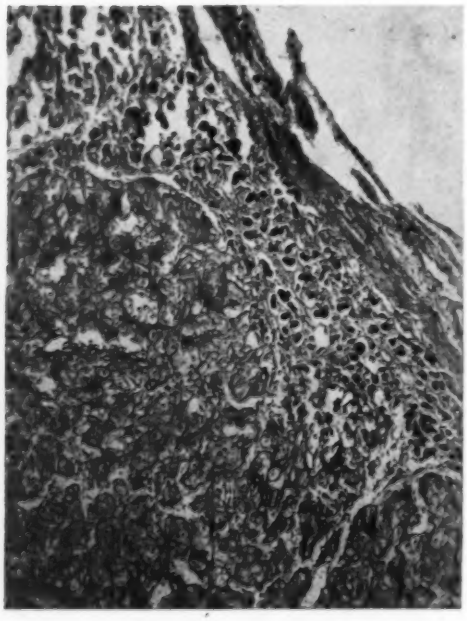

Fig. 9—Microphotograph showing amyloid filling most of the adrenal cortex, except the zona glomerulosa (Case 3). (H. & E. × 60)

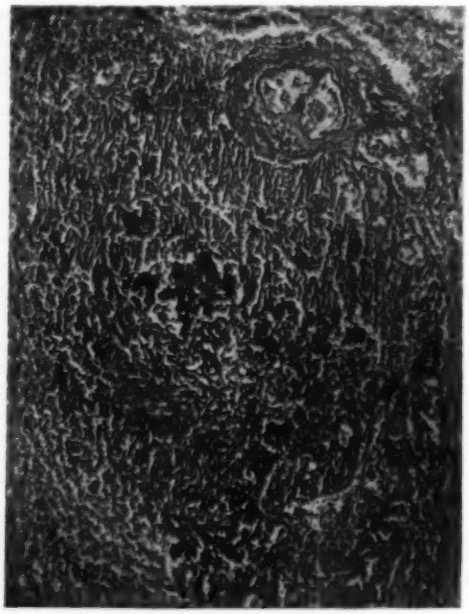

Fig. 10—Microphotograph showing amyloid deposits filling in the Malpighian bodies of the spleen (Case 3). (H. & E. × 60)

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be a cleavage product of antigen-antibody reaction. Hyperglobulinaemia is a constant finding in experimentally induced amyloidosis. Dahlin and Dockerty (1950) suggest that the plasma cells elaborate amyloid. The myeloma cells in cases of multiple myeloma enclose the amyloid substance. All these and several other views expressed so far indicate that the site of formation of amyloid is yet to be determined.

Reiman *et al* (1935) classified amyloidosis into :

1. Secondary amyloidosis,
2. Primary or idiopathic amyloidosis,
3. Tumour-forming amyloidosis
and
4. Amyloidosis associated with multiple myeloma.

Secondary amyloidosis is commonly encountered and is almost always associated with prolonged suppuration, tuberculosis and syphilis with extensive destruction of tissue. Primary amyloidosis is rather infrequent and is not associated with any known disease. The reported cases of primary amyloidosis do not conform to the criteria enunciated by Lubarsch (1929). The single criterion on which a diagnosis of primary amyloidosis is to be based is the conspicuous absence of aetiological factors disclosed after autopsy.

Clinical recognition of amyloidosis is difficult. The condition is usually spotted at autopsy. Organs containing amyloid deposits are enlarged, and glassy and waxy in appearance. Although these features may suggest amyloidosis, a diagnosis is not made until the iodine reaction is positive. Amyloid is invariably spotted on histological study. It is a homogeneous, eosinophilic, extra-cellular, nonfibrillar substance (stains with haematoxylin and eosin) and stains metachromatically with methyl violet. The prognosis in this condition is poor, in that 80 per cent of the patients are dead within a year of diagnosis.

Amyloidosis of secondary type is a frequent autopsy finding in deaths due to tuberculosis in Europe, and at one time 40 per cent of cases of pulmonary and bone tuberculosis showed amyloid. Lindsay (1946) and Dahlin (1949) have reviewed 72 cases of primary amyloidosis. It is generally believed that amyloidosis is rare in our country. This may be attributed to the infrequent autopsies carried out in our hospitals and also to the possibility of the lesion having escaped the observation of the doctor or pathologist. Bhende and Patel (1959) recently published a critical analysis of 12 cases and included an excellent review of the published cases of amyloid in this country (Table 1). They opine that amyloidosis has been more frequently reported in this country since World War II. This is attributed to the persistence of the predisposing factors and improved nutritional status of the people.

TABLE 1—SHOWING CASES OF AMYLOIDOSIS REPORTED (1939-1959) AMONGST INDIANS

Authors and year	No. of cases	How discovered	Probable type
Anantachari (1939) ...	1	Smear of liver aspiration	?
Monteiro (1942) ...	4	Autopsy	Secondary to tuberculosis
Wahi (1946) ...	1	Liver biopsy	?
Wahi & Tandon (1950) ...	1	Autopsy	Primary
Mangalik (1951) ...	2	Autopsy	Primary
Gharpure (1951) ...	7	Autopsy 5	Primary .. 1 Secondary to tuberculosis 1 Secondary to pyonephrosis .. 1 Secondary to syphilis .. 1 Secondary to amoebic dysentery 1
		Liver biopsy 2	?
Reddy (1951) ...	2	Autopsy	Primary (sago spleen) .. 1 Secondary to syphilis .. 1
Gupta *et al* (1956) ...	2	Liver biopsy	?
Sarin *et al* (1957) ...	5	Kidney biopsy	Secondary to tuberculosis 1 ? .. 4
Gupta *et al* (1958) ...	9	Kidney biopsy	Primary .. 1 Secondary to tuberculosis 2 ? .. 6
Agarwal & Shrivastav (1958) ...	1	Surgicaly removed specimen	Amyloid tumour of the eye lid .. 1
Bhende & Patel (1959)	12	Autopsy 11	Primary—liver .. 1 Secondary to thromboangitis obliterans .. 1 Secondary to tuberculosis 9
		Liver biopsy	(clinically proved tuberculosis)

Out of the 393 necropsies recorded at the pathology department, Guntur Medical College, amyloidosis was spotted in three. Two of them were encountered in consecutive months and this has prompted us to record the clinico-pathological findings of the same.

Case Reports

Case 1—G.P., Hindu, male, aged 30, was admitted into the Government General Hospital, Guntur, on 22-10-1956 for breathlessness, oedema and pain all over the body.

Physical examination revealed anaemia, systolic murmur over the pulmonary and mitral areas. His urine contained albumin but no casts. On clinical diagnosis he was treated for subacute nephritis. The patient expired on 5-11-1956.

Chief autopsy findings (including morbid histology) :

Peritoneal and pleural cavities contained about a litre of clear fluid. The kidneys were reduced in size and appeared granular. Sections of both the kidneys showed that the glomeruli were the sites of amyloid deposit, which showed a homogeneous, acellular, eosinophilic material. The glomeruli were positive for metachromasia with methyl violet stain. No other organ showed similar deposit of amyloid.

Case 2—P. A., Hindu, female, aged 35, was admitted on 9-7-1960 for breathlessness, fever and swelling of the body, of 11 days' duration. For similar episode she was treated in the same hospital two months ago.

Physical examination revealed anasarca, diminished breath sounds in both the bases of the lungs, and feeble heart sounds. The spleen and liver were not palpable. The blood pressure was 128/80 mm. Hg.

INVESTIGATIONS :

R.B.C.—2·9 ·million/c.mm.; W.B.C.—5,000/c.mm. with polymorphs 62 per cent, lymphocytes 30 per cent and eosinophils 8 per cent.

Serum protein was 3·75 g. per cent with albumin 0·75 g. per cent and globulin 3·0 g. per cent; blood urea, 27 mg. per cent and blood cholesterol, 121 mg. per cent.

Urine examination showed albumin ++, and pus cells and epithelial cells.

The patient was tapped per abdomen. He expired a few days later.

Chief autopsy findings (including morbid histology) :

In both the lungs caseating tuberculous lesions were seen. They were subapically located. The tracheobronchial lymph nodes were enlarged and caseous. Stained smears from these lesions showed acid fast bacilli. The lesions were histologically confirmed. The spleen was slightly enlarged and the cut surface presented discrete greyish white tiny opaque spots. The kidneys were enlarged and pale. Adrenals were unusually firm. The spleen and the kidney slices were treated with iodine solution and sulphuric acid. Both presented bluish spots. Sections of the spleen (Fig. 1, *vide* Plate) disclosed homogeneous, acellular, eosinophilic substance replacing partially or completely malpighian body (Fig. 2, *vide* Plate) and the same exhibited metachromasia with methyl violet stain. Sections of the kidney showed deposition of similar material in the glomeruli and the arterial walls. Metachromasia was demonstrated in the glomeruli with methyl violet (Fig. 3, *vide* Plate). The tissue stained violet and the glomeruli rose pink. Sections of the adrenals showed moderate amount of amyloid deposits. The findings are consistent with secondary amyloidosis associated with pulmonary tuberculosis.

**Case 3*—Female, aged 50, was admitted into the hospital on 9-8-1960 for frequency of motions with blood and mucus, oedema of the feet and distension of the abdomen, of two months' duration. Fifteen days before admission to the hospital, she had been experiencing dyspnoea.

Physical examination revealed that the abdomen was distended and tender.

INVESTIGATIONS :

Faeces, vegetative forms of *Entamoeba histolytica* were seen; Urine, albumin; Serum proteins, 5·3 g. per cent; X-ray chest showed domes of diaphragm raised on both sides. Calcific spots were seen over the right hilum.

The patient expired on 24-8-1960.

Chief autopsy findings (including morbid histology) :

Amoebic ulcers in the intestines with perforation and peritonitis were observed. The coils of intestines were matted together; thick plaques of pus were seen in both the flanks and the pouch of Douglas and the peritoneal cavity contained 12 oz. of purulent material. The liver showed perihepatitis, its surfaces were coarsely nodular (Fig. 4, *vide* Plate). But surface showed whitish streaks. Multiple serial cut sections of the liver showed small yellowish foci. The spleen was of normal size but firm. Sectioned surface stained with iodine showed typical appearance of 'sago spleen' (Fig. 5, *vide* Plate). Both the kidneys were larger than normal, and were pale and firm. Adrenals were firm and enlarged. Sections of the liver showed typical amyloid deposits, manifesting metachromasia with methyl violet (Figs. 6 and 7, *vide* Plate). Close to these deposits were seen typical miliary gummatous areas. Sections of kidney showed deposits of similar material in the glomeruli and the vessel walls (Fig. 8, *vide* Plate). Sections of the adrenals showed massive deposits of amyloid, totally obscuring their architecture but for the preservation of zona glomerulosa (Fig. 9, *vide* Plate). Sections of the spleen showed total replacement of the malpighian body by amyloid substance (Fig. 10, *vide* Plate). Every one of them exhibited metachromasia. Secondary amyloidosis associated with intra-abdominal suppuration was the final diagnosis made.

* Presented for Clinicopathological Conference at the Academy of Medical Sciences, Andhra Pradesh, Guntur branch on 21-10-60.

Comments

Cases 1 and 2 represent the not uncommon clinical form of subacute nephritis with manifestations of amyloidosis. The true nature of the lesion was not disclosed until the histological examination of the tissue. In the first case no predisposing cause could be found at autopsy for the amyloid deposits in the kidney and hence was labelled as 'primary amyloidosis'. In Cases 2 and 3 pulmonary tuberculosis and peritonitis respectively were associated with amyloidosis, and so were reckoned as 'secondary amyloidosis'. The nodular surface of the liver seen in Case 3 could not be accounted for. There was no histological evidence of syphilitic or cirrhotic lesions. The suppuration observed in the case was certainly not of long duration and yet has been associated with amyloidosis of multiple organs.

The infrequent reports published on this subject from this country has led pathologists to comment on the factors that may promote or inhibit the deposition of amyloid. Clinical, epidemiological and experimental studies suggest that low protein intake is not conducive to the deposition of amyloid. This offers a challenge to the clinicians and pathologists of this country for further study and clarification. The refinements in diagnostic aids by way of renal, hepatic and pulmonary biopsies and the increase in autopsies conducted throughout the country should enable us to assess not only the exact incidence of amyloidosis but also its probable aetiology.

Summary

1. Pertinent literature on amyloidosis is briefly reviewed.
2. Clinicopathological findings in a case of primary and two cases of secondary amyloidosis are recorded. A suggestion is made to bear in mind amyloid disease in cases of obscure nephrotic syndrome.
3. The real incidence of amyloidosis in this country may have to be reassessed in the light of improved diagnostic facilities now available and the likely increase in the number of autopsy examinations throughout the country, owing to a corresponding increase in number of medical colleges.

Acknowledgment

We are grateful to the physicians of the Government General Hospital, Guntur, for the case histories and to our departmental artists for the help rendered.

References

Agarwal, S. and Shrivastav, J. B.—*Brit. J. Ophth.*, **42** : 433, 1958.

Anantachari, M. D.—*Indian M. Gaz.*, **74** : 84, 1939.

Bhende, Y. M. and Patel, S. M.—*Indian J. Path. & Bact.*, **2** : 286, 1959.

Dahlin, D. C.—*Am. J. Path.*, **25** : 195, 1949.

Dahlin, D. C. and Dockerty, M. B.—*Ibid*, **26** : 581, 1950.

Gharpure, V. V.—*Indian M. Gaz.*, **86** : 545, 1951.

Gupta, G. K., Gupta, N. N., Mehrotra, R. M. and Mangalik, V. S.—*Ibid.*, **1** : 59, 1958.

Gupta, N. N., Wig, N. N. and Agarwal, K. C.—*J. Indian M. A.*, **26** : 448, 1956.

Lindsay, S.—*Am. Heart J.*, **32** : 419, 1946.

Lubarsch, O.—*Virchow's Arch. Path. Anat.*, **271** : 867, 1929.

Mangalik, V. S.—*Indian J. M. Sc.*, **4** : 281, 1950.

Monteiro, L.—*Med. Bull.*, **10** : 567, 1942.

Reddy, D. J.—*Indian M. Gaz.*, **86** : 548, 1951.

Rokitansky, C.—Handbuch der speciellen path. Anat., Vienna, 1842, Vol. 3, p. 311.

Reiman, H. A., Koucky, R. F. and Eklund, C. M.—*Am. J. Path.*, **11** : 977, 1935.

Sarin, L. R., Das Gupta, A., Bhandari, V. and Samuel, K. C.—*J. Indian M. A.*, **29** : 7, 1957.

Skinner, H. A.—The Origin of Medical Terms, 1949. Williams & Wilkins, Baltimore.

Virchow, R.—Cellular Pathology, 1860, p. 371.

Wahi, P. N.—*Indian M. Gaz.*, **81** : 130, 1946.

Wahi, P. N. and Tandon, H. C. D.—*Ibid*, **85** : 537, 1950.

PRACTITIONERS' SERIES

PROBLEMS AND REHABILITATION OF THE PHYSICALLY HANDICAPPED

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Medical College, Pondicherry

A handicapped person is one who has impairment of physical or mental capacity. Subjects with physical disability are called orthopaedically or physically handicapped, and those with mental backwardness are called mentally handicapped. There is, however, a class of patients who are both physically disabled and mentally handicapped, such as the cases with cerebral palsy. From the random sample survey of the handicapped in

Paper read before the South Arcot branch of the Indian Medical Association in October 1960.

Bombay (1957) it was revealed that the orthopaedically handicapped formed the single major group, being 36·1 per cent of the total. Rehabilitation means that the handicapped person is restored to the fullest physical, social, vocational and economical fulfilment of which he is capable. No doubt actual rehabilitation of the patient is often carried out by specialists in the various branches of medicine, but supervision and proper guidance of the patient is always done by the family physician. Thus there is a great need for every medical practitioner to possess adequate knowledge of the possibilities and potentialities of rehabilitation, i.e., as to how and how much can be achieved by a well organised rehabilitation programme.

Broadly speaking, when treating any disease or injury, we are dealing with a disability but, luckily in most of these cases the patient gets over the pathological process and goes back to his work. In some of these cases with chronic and disabling diseases, like rheumatoid and tuberculous arthritis, poliomyelitis, etc. the patient is never cured in the true sense of the term and he has got to learn how to live again with his disability and despite his disability.

It may be pointed out that the first point, and quite often an important one, in the rehabilitation is adequate medical and surgical care. Every day better and newer drugs and operative procedures are being discovered to help the poor victims many of whom were neglected by the medical profession and declared as "incurable" some years ago.

The handicapped are found in the families of the rich and the poor ; they appear in every race and every nation, in fact their rehabilitation is a world-wide problem. Hundreds of such individuals are seen on the street, they crawl on their hands and knees or hobble around on their deformed and maimed limbs. It can be said confidently that quite a few of them, with a little effort, can be made to walk upright on their two legs and lead more or less normal, self-respecting lives, earning their own living instead of being a burden to the family or the community at large. Also, with a properly organised team and effort no disability can be too hopeless to work with and rehabilitate. It might be of interest to learn that some great men like President Roosevelt were also physically handicapped. Roosevelt had suffered from paralysis due to an attack of poliomyelitis and was confined to a 'wheel-chair' existence. In spite of this disability, it is well known how ably the president steered the destiny of the American nation in one of the most difficult times of history. It is because of the fact that most of the physically handicapped are mentally normal and, in fact, if given the proper opportunity, they compensate for the physical disability by better mental development.

Problems Involved

Crippling, regardless of its aetiology, always results in an endless chain of problems for the individual and the people around him. Ways and means have to be found out to alleviate them.

1. *Medical aspect*—Most of these disabilities or diseases leading to them like arthritis, poliomyelitis, leprosy, etc. are such that their treatment needs properly staffed specialist services in the hospital where rehabilitation can be started by good medical and surgical care. The degree of disability can thus be minimised and would reduce the rehabilitation efforts at a later date. With establishment of new hospitals and other institutions in the country things appear to be improving. It is here that general practitioners are expected to play an important role by referring the cases for hospital care, at an early stage of the disease.

2. *Social aspects*—Crippled children and adults are looked down upon and usually normal children are not allowed to play and mix freely with the disabled ones due to superstition. Luckily, the public seems to be getting more tolerant and understanding but, still much remains to be done by way of public education on this point. In many cases, it has been found that the attitude of the society has been a greater handicap than the physical limitation itself.

3. *Psychological*—The traumatic shock of the disabling injury or illness has a devastating psychological effect on the patient. This aspect has to be looked into a great deal, especially in our country, where most of the patients have such a negative attitude on life, and once afflicted with any disease or injury, they never try to help themselves.

4. *Vocational*—Depending on the type and the degree of disability, we have to guide and properly train the patients so as to make them economically independent, at least to a great extent. In fact, this is the final goal of rehabilitation. But, it poses an important question in a country like ours where even the able-bodied individuals cannot find enough employment, how are we going to employ these cripples who, if properly trained, may be quite good at their job but unable to compete in the labour market. Till the employers can be convinced that a disabled

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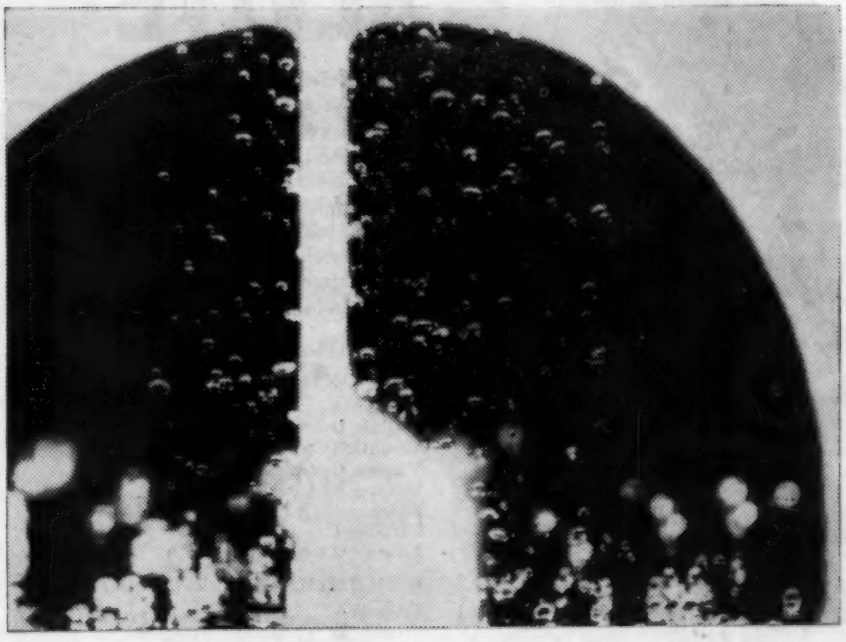

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person walking with a calliper or a crutch need not be disqualified for say a clerical job, we will have to train them for certain trades like printing, book-binding, leather work, etc., in which they can find self-employment. Various types of cottage industries are another field where they can find employment easily. Once properly trained, it is amazing how some of the disabled adapt the rest of their limbs and body to do anything. It is interesting to see even bilateral lower limb amputees walking about in proper prostheses and doing all sorts of jobs.

It may be remembered that, in spite of all its disadvantages, the joint family system in India has been a boon to the society, so far as the disabled are concerned. It gave them excellent social and economic security. They never felt frustrated, as they were not thrown into the street to beg in order to earn a living.

Causes of Disability

Congenital defect, disease and injury are the 3 main causes of physical disability. It may be of interest to note that only 3 to 5 per cent of the population suffers from some form of physical disability. However, all of them are not severe enough to need an active help in rehabilitation.

Congenital causes—A majority of the cripples are born normal and later get affected with a crippling disease. Some of them may be born with congenital defects. The commonest of these conditions is the so-called 'congenital club-foot' or talipes equino-varus (Fig. 1). The incidence of this deformity is said to be one in one thousand live-births. If treatment is started early enough, a normal foot results in almost all the cases (Fig. 2). In late cases operative measures can improve the shape of the foot to a great extent. Other congenital causes are congenital amputation, dislocation of the hip, spina bifida, etc.

Injury—This is a cause of crippling in a varying percentage of cases. One may have to amputate the limbs after an irreparable crushing injury (Fig. 3). Today the knowledge of prosthesis is so much advanced that, after fitting of a good artificial limb it may become really impossible, even for an experienced person, to say which leg has been amputated. Newer materials like plastics are being used to make durable and light artificial limbs.

With the increasing industrialisation of the country, hand and other injuries are going to become one of the biggest problems. It leaves the workers with crippled hands, if proper hospital facilities for the treatment and rehabilitation are not provided.

Another problem, which has great incidence in southern part of the country, is the fracture of the spine—cervical or lumbar, due to fall from a height, including tall coconut or palm trees. In some of these cases, in addition to the breaking of the bone, there is complete paralysis of either both the legs or all the four limbs—the so-called paraplegia or quadriplegia. In most of these cases, the patients are young and energetic individuals. Imagine what a tragedy it is to find a

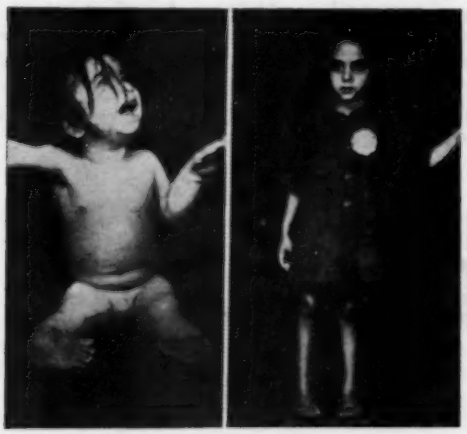

Fig. 1 Fig. 2

Fig. 1—Showing a Child with Congenital 'Club-foot' Deformity. Fig. 2—Showing the same Child as in Fig. 1 After Correction. The Child is now 6 Years Old

Fig. 3 Fig. 4

Fig. 3—Showing an Adult with Right Leg Amputated after a Severe Crush Injury following a Fall from a Train. Fig. 4—A Young Girl Affected with Leprosy. Both Hands show 'Claw-hand' Deformity. Right Foot shows Ulceration and Partial Distal Bones Atrophy. Left Leg Amputated on Account of Severely Ulcerated Deformed Foot due to Lateral Popliteal Paralysis

young man in the prime of his life getting completely paralysed and unable to walk or even care for himself! But the society can hardly afford to throw away these broken bodies as 'human scrap'. For their rehabilitation special organised paraplegia centres are necessary. They can be trained with the help of callipers on their lower limbs, to walk with crutches and even get on to a motor cycle or into a car and go to distant places for work with their two good upper limbs.

Diseases—This is the third and major group of causes bringing about crippling. Many diseases, especially those of bones and joints, leave in their wake a great deal of crippling. Only the major ones would be mentioned.

(*a*) Arthritis: Various types of arthritis, especially rheumatoid and tuberculous, by destroying the joint surfaces, result in much crippling from impaired function of the hands, arms and legs. These are the diseases where a close cooperation between the general practitioner and the orthopaedic specialist would go a long way in decreasing the ultimate disability by splinting of the various joints in the best possible functioning position, and later by salvage of the joint after the onslaught of the disease is over. Much work has been done in devising different types of joint arthroplasties whereby we get back the movements. Even the replacement of these joints by plastic or metal joints is being tried. This is yet in an experimental stage. If we can diagnose the lesions of the bones and joints at an early stage and treat them adequately and properly, we can get many more useful joints left over. With the advent of streptomycin and other antituberculous therapy and early operative interference, wherever indicated, the total disability can be greatly decreased in cases of bone and joint tuberculosis. However, a certain percentage of patients with marked crippling needs prolonged care in special institutions or after-care homes.

(*b*) Leprosy: This is another infectious disease which leaves in its wake physical deformities and disability of hands, feet, nose, etc. It is estimated that there are about 15 lakhs leprosy cases in India. The eastern coastal areas of south India are endemic areas for leprosy. A recent survey by Chatterjea in 1958 on leprosy in the Pondichery State shows the average incidence of this disease to be as high as 7·1 per cent. Luckily, the sulphones can cure leprosy provided the treatment is started early and continued long enough, but the deformities remain to be treated by the orthopaedic and plastic surgeons. The pioneering work of Paul Brand, Riordan and others has now made it possible to tackle these deformities and the patients are once again made useful and cosmetically acceptable to the society. We have also made a beginning in this field and operated on similar cases, in most of whom the results have been gratifying (Figs. 4, 5, 6).

(*c*) Poliomyelitis: This is a disease which, even the lay public can recognise as an obvious cause of crippling, because one can see these people hobbling in the street with deformed and dried up limbs (Fig. 7). Poliomyelitis is not an uncommon virus disease, which usually affects very young children, often before the age of 10 years. The paralysis comes on suddenly but, fortunately in 50 to 70 per cent of cases there is complete or almost complete recovery; and the rest of the cases also show recovery to a great extent. It is only in about 10 per cent of cases that severe paralysis remains, and these cases present the major problem to both the surgeon and the society. The discovery of Salk vaccine and the newer vaccine which can be administered by mouth, seem hopeful for the future children who could be saved from this crippling disease. The main principle in treatment is to make the best use of the muscles, which have survived the onslaught of the virus, by means of various types

FIG. 5

FIG. 6

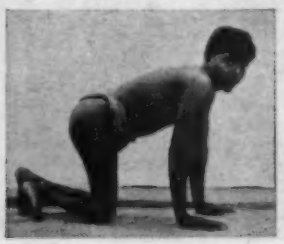

FIG. 7

FIG. 5—POSTLEPRA CLAW HAND DEFORMITY (PRE-OPERATIVE OF PATIENT IN FIG. 4). FIG. 6—HAND ALMOST NORMAL COSMETICALLY AND FUNCTIONALLY (POST-OPERATIVE MODIFIED SPLIT SUBLIMIS TENDON TRANSPLANT DONE.) FIG. 7—SHOWING A YOUNG ADULT WITH BOTH LOWER LIMBS PARALYSED DUE TO POLIOMYELITIS SINCE CHILDHOOD UNDERGOING RECONSTRUCTIVE SURGERY PRIOR TO REHABILITATION

of tendon transplantation or bone arthrodesis. Most of these poor victims need later use of various appliances, such as callipers and spinal jackets etc. to maintain the functional improvement obtained by operative interference.

These appliances are expensive, since they have to be repaired and replaced as the children grow up. By careful handling, these cripples can be helped to a great extent and something can be done for them in almost all the cases.

Prevention of Crippling

Preventive medicine is the newer concept in medicine. As discussed before, we have to try and prevent the formation of these cripples by proper and timely treatment. The process has to start at birth. As the child can be born with crippling deformities or may sustain birth injuries, proper antenatal, natal, and postnatal care of the mothers would go a long way. Better and adequate nutrition and provision of hygienic living conditions will bring down the incidence of diseases like tuberculosis, leprosy, poliomyelitis, etc., and thereby indirectly prevent 'crippledom' in the society.

In conclusion, we would like to emphasize that the handicapped should also enjoy the fundamental rights of existence, education and other opportunities for intellectual and social advancement. It is we, who are not disabled, who have to create all these conditions for their physical and psychological rehabilitation. Of course, we as doctors can do a lot for them in our humble way.

SPECIAL ARTICLES

CEREBRAL ANGIOGRAPHY

BINOY CHAKRABORTY, M.S. (CAL.)

Department of Neurology, S. S. K. M. Hospital Calcutta

Although, the story of neurosurgery may be traced as far back as the Neolithic age (skulls belonging to these days with operative defects have been discovered), the modern era in neurosurgical investigations begins from the year 1919 when Dandy, a co-worker of Harvey Cushing, described his method of ventriculography. This technique consisted in replacing the ventricular C.S.F. by air introduced through burr-holes and x-ray visualisation of the ventricular system in various positions. Carotid angiography described by Egas Moniz in 1927, is another important landmark in this field.

Cerebral angiography is the demonstration of blood vessels of the brain which have been made radio-opaque by injecting an opaque medium. This method has been infrequently used until recent years and its greatest value still lies in the diagnosis of vascular lesions such as intracranial aneurysms, A.V. shunts, angiomas, or intracranial haematomas. With increasing knowledge of normal vascular pattern the method is becoming of greater value in tumour localisation. It has been claimed that by the vascular pattern it is possible to identify the gross pathology of the tumour one is dealing with. Workers in Torkildsen's clinic in Oslo have used angiography so extensively that they feel they are able to recognise even the histology of the tumour by its vascular pattern and hence its operability.

List and Hodges (1946) have been using cerebral angiography as a diagnostic aid in the United States since 1946. In our unit it has been one of the routine methods of investigation in intracranial lesions, whether vascular or neoplastic, since its introduction in 1955.

Previously the method of introducing the dye was by open exposure of the carotid artery and injecting the dye under direct vision. Since 1948 Poppen has been using the closed or percutaneous method. The percutaneous method of puncturing the carotid artery gives equally satisfactory results. We also prefer this method in our unit. At times the closed puncture method may not be successful in a short-necked individual, and in such cases the open method is resorted to.

For a complete cerebral vascular pattern both carotid and vertebral angiograms are necessary, but we have only occasionally used the vertebral puncture. At times when a posterior pole localisation is suspected, vertebral filling of the dye is possible by direct puncture of the common carotid artery and pushing the dye while compressing the artery above the point of the needle and obstructing the axillary artery of the same side with a tourniquet. Similarly, the anterior and middle cerebral arteries of both sides can be filled by compressing one carotid artery while the other is being injected.

In earlier days the contrast medium used was thorotrast (radioactive thorium dioxide). Thorotrast has now been discarded since it may initiate malignant changes in the injected tissues and liver. At present the contrast medium used is diodone. It has been experimentally determined that 35 per cent solution of this dye can be injected in an individual in an amount of even 120 ml. at a single sitting. The intra-arterial injection of this dye may cause some discomfort and in sensitive indivi-

duals some reactions. We have employed 30 per cent concentration of the dye with success. In case of huge A.V. aneurysms and indirect vertebral angiography a higher concentration of dye may be needed. For the above two conditions we have used 50 per cent of the dye. We are now using urograffin (German Scherring) 60 per cent as a routine, and we have used up to even 40 ml. of this dye without any reaction.

Before angiography is decided upon the patient is tested for iodine sensitivity as a routine. This can be done by oral administration of potassium iodide mixture or by intracutaneous injection of a few drops of diodone or by the conjunctival test. Normal redness of the conjunctivae of both the eyes are first noted and one drop of 30 per cent diodone is instilled into one conjunctival sac and after 30-45 minutes both the eyes are again examined for redness or oedema. If there is no increase in redness diodone can be used safely. In our practice we have encountered such reaction in 3 cases only.

Technique of Cerebral Angiography

The angiography is carried out in the morning with the patient in empty stomach, or a cup of tea may be allowed. General anaesthesia has been rarely used in our unit, except for children or apprehensive individuals. The patients are taken to the x-ray room well sedated with chlorpromazine and luminal. This preliminary sedation has allowed us to puncture the carotid artery even in a boy of 7 years without general anaesthesia. The patient's head is placed on the screen of the angiography unit. The machine can be adjusted so as to allow simultaneous P.A. and lateral exposures to a maximum rate of 6/second. Extension of the head is helped comfortably by soft rubber cushions. Preliminary aseptic measures are taken and the site selected for puncture is infiltrated with a few ml. of 2 per cent novocaine. After a stab with a sharp scalpel the tip of the needle is introduced. The common carotid artery is slightly displaced laterally and it is forked in between the second and third fingers of the left hand. The artery is punctured with a thrust when a pulsating gush of blood appears. Glucose or normal saline solution is then made to run through the needle. The x-ray machine is checked up and then about 10 ml. of the dye is injected at one shot. The switch of the machine is pressed during the injection, as soon as 7 ml. of the dye has been pushed in. This timing gives excellent serial arteriography. If venograms are also wanted then exposure after 2 seconds will give the filling of superficial veins on the convexity of the cerebrum (phlebogram of the first phase). Demonstration of the large dural sinuses (phlebogram of the second phase) is possible if pictures are taken after 4 seconds of injection.

As soon as the investigation is complete the needle is withdrawn and firm pressure applied for a few minutes, after which an adhesive plaster strip is applied with minimal dressing.

Complications

A number of complications ranging from minor discomforts, vomiting and convulsions to permanent hemiplegia, respiratory embarrassment and even death have been reported. In our unit, out of 500 angiograms performed in the course of 5 years we had encountered transient hemiplegia in 3 cases, severe convulsion during injection in 2 cases and aggravation of symptoms in one case.

The actual cause of hemiplegia is not definitely known. Some of the possible causes are:

1. Air embolism—Air is either pushed along with the dye or nitrogen bubbles are evolved from blood, due to contact with cold dye. It is preferable to maintain the dye at a temperature of 90°—100°F.
2. Thrombo-embolism, due to long stay of the needle inside the artery.
3. Arterial injection of saline solution is said to cause occasional thrombosis of vessels, and so 5 per cent glucose is preferred.
4. In some cases there is a drop in the blood pressure during angiography. This transient arterial hypotension may be a possible cause of hemiplegia.

Respiratory embarrassment is possible either from localised haematoma or extravasation of the dye round the trachea, thereby causing oedema of the larynx, or at times an allergic spasm of muscles has been observed producing trismus and falling of the tongue backwards. These are tackled by establishing a clear airway.

Deaths have been reported from massive thrombosis of internal carotid artery throughout its course, or from extreme damage of cortical cells from perivascular haemorrhages, or from extreme cyanosis and respiratory failure.

Despite these demerits, the place of cerebral angiography in the localisation of intracranial lesion is unquestionable. It has special advantages over air studies in view of the fact that it does not further increase the already high intracranial pressure and unlike ventriculography it does not precipitate the need for intracranial surgery, except in late cases with very large intracranial tumours.

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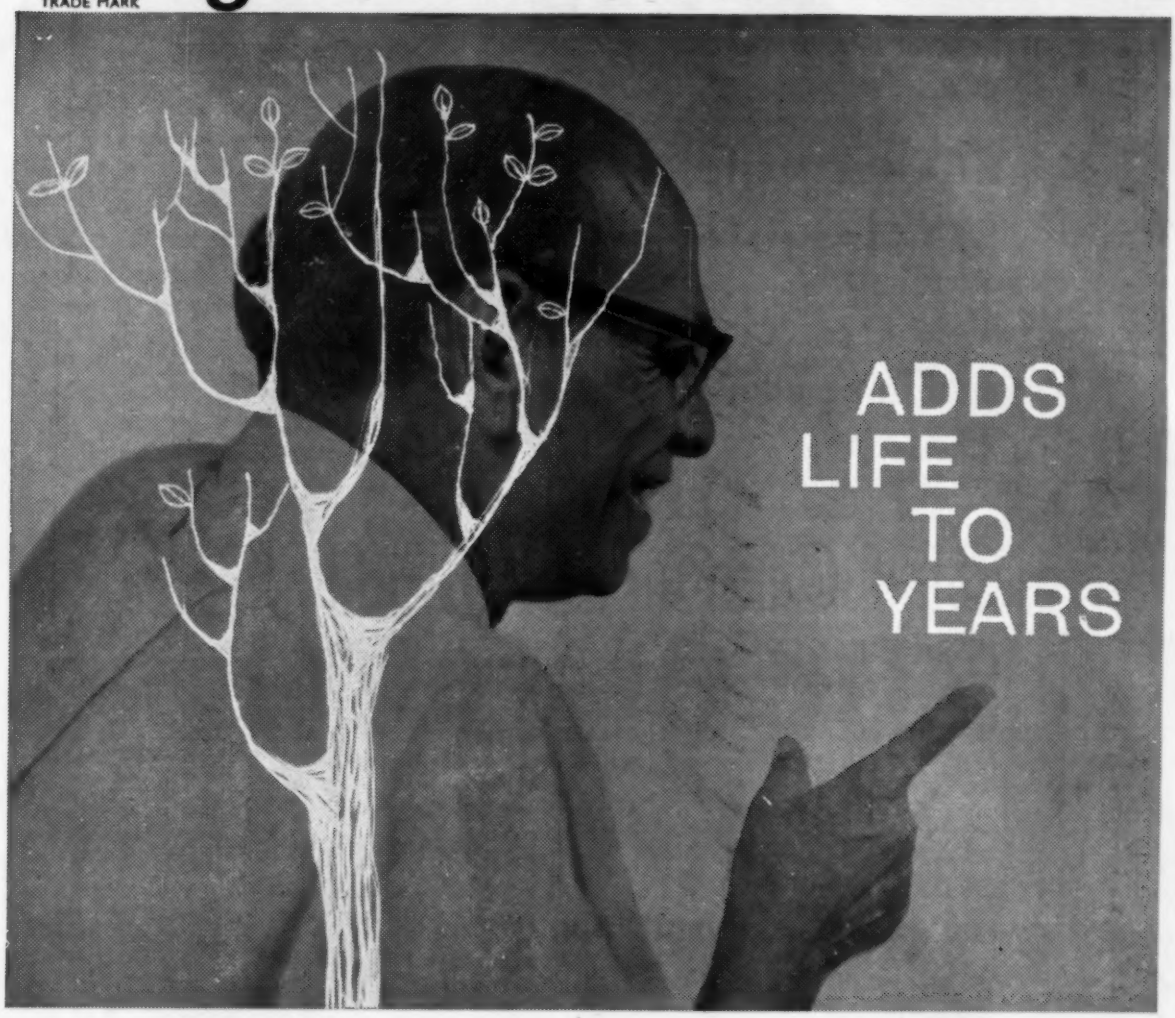

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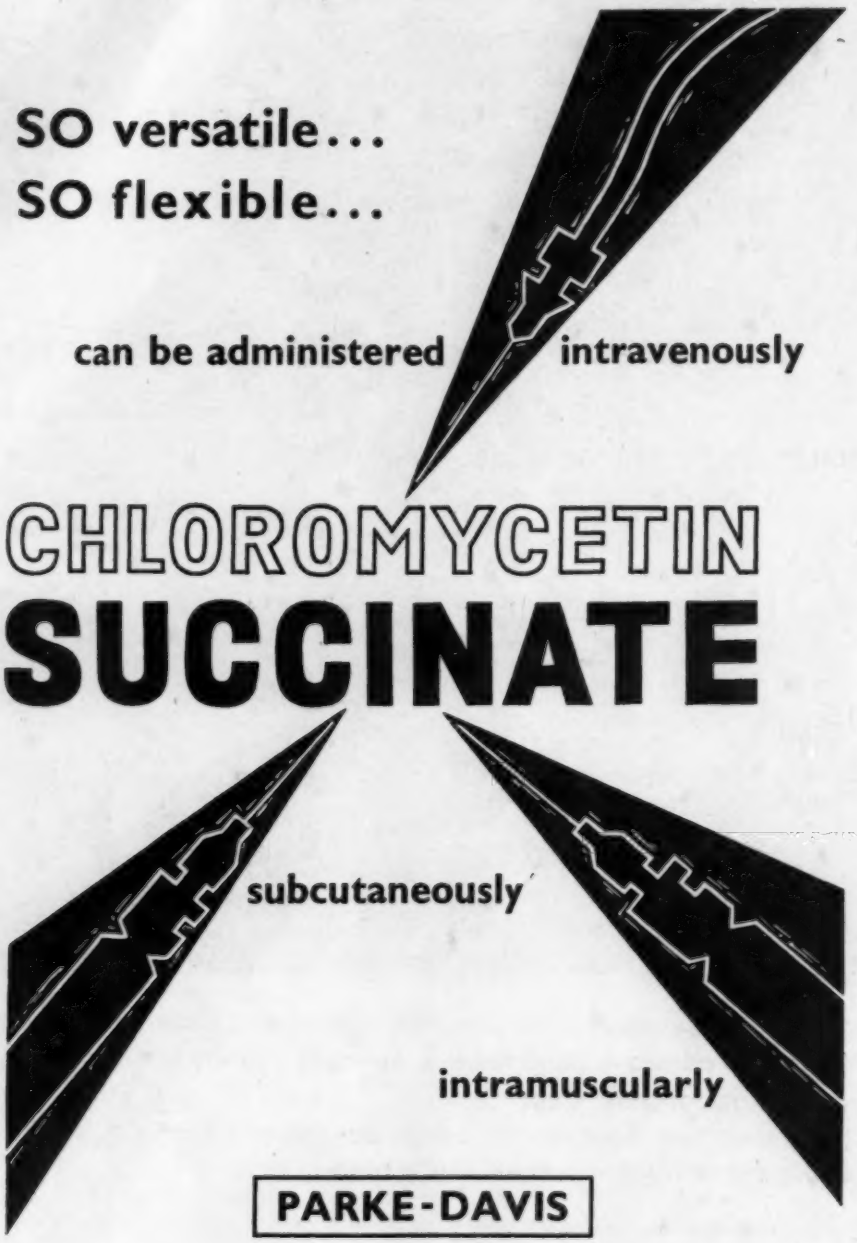
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ACKNOWLEDGMENTS

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REFERENCES

DANDY, W. E.—*Am. J. Roentgenol.*, **6**: 26, 1919.
LIST, C. F. AND HODGES, F. J.—*J. Neurosurg.*, **3**: 25, 1946.
MONIZ, E.—*Bull. Acad. de méd.*, **98**: 40, 1927.
POPPEN, J. L.—*Am. J. Surg.*, **75**: 178, 1948.
TORKILDSEN, A.—*Acta psychiat. et neurol.*, Supp. 55, **3**: 168, 1949.

SPECIALITY PROBLEMS OF DERMATOLOGY IN INDIA

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The majority of dermatological problems fail to attract public attention for their 'trivial' nature. But this does not appear to be so from the sufferings of patients attending the outpatient department. Fig. 1, prepared from statistics over the last 10-years, shows the first five departments in order of the highest outpatient attendance at the K. E. M. Hospital, Bombay. The skin and venereal diseases account for the third highest attendance at the outpatient department and are only next to medicine and surgery. This suggests that cutaneous morbidity must be of an extenuating nature to attract so many patients, in spite of the known hardship of attending a general hospital. Fig. 2 shows an analysis of the major disease categories from the records of the skin and venereal department. It shows that the major load, 47 per cent of dermato-venereological disorders, falls in the group of diseases caused by infective agents. The other 53 per cent of the cases account for the remaining 270 diagnostic entities encompassing the rest of dermatologic problems. The main diseases in the infective group are scabies (19·5 per cent), pyoderma (12·8 per cent), leprosy (5·5 per cent) and mycotic infections (11·5 per cent). The high case loads of these parasitic

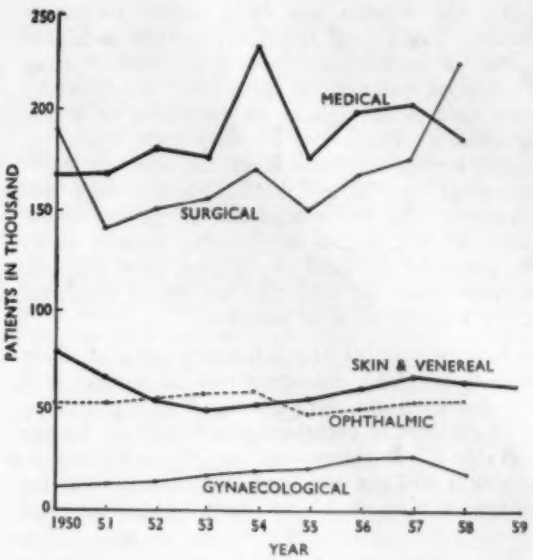

FIG. 1—SHOWING THE FIRST FIVE DEPARTMENTS IN ORDER OF HIGHEST OUTPATIENTS ATTENDANCE FOR 10 YEARS (1950-59)

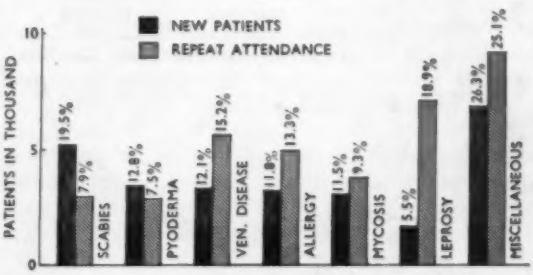

FIG. 2 SHOWING THE MAJOR DISEASE CATEGORIES RECORDED AT THE SKIN AND VENEREAL DEPARTMENT DURING ONE YEAR (TOTAL ATTENDANCE 62,445: NEW PATIENTS 26,069, REPEAT VISITS 36,376)

infestations were also reported from the skin and venereal diseases departments from five other medical centers in India, in reply to the author's questionnaire. Another important fact is the high load of repeat attendance for these diseases. This indicates the infectiveness of our therapeutic methods in spite of the availability of specific treatments for scabies and pyoderma. The chronicity of mycotic and leprosy infections explains why repeat attendance outnumbers the new patients. Cases of viral infections such as herpes simplex and zoster, warts and molluscum contagiosum form only 1·2 per cent of the total new outpatients. The number of new cases seen in a year were 51 of herpes simplex, 108 of herpes

zoster, 112 of warts and 43 of molluscum contagiosum. These viral infections are not so highly contagious as the parasitic group. Perhaps there is a natural immunity against them, which breaks down only under special circumstances in a few individuals. There are no large-scale epidemiological studies on these identities, and we know less about the factors responsible for their low infectivity, and the mechanism of natural resistance. High incidence of parasitic diseases signifies generally the poor health and poor hygienic facilities which go with the low living standards of the hospital class of patients.

Let us examine the infectivity rates of these conditions. The contagiousness of scabies and mycotic infections were examined in the families of 25 patients of each, and the results are shown in Table 1. It shows that the infectivity rate of scabies is 100 per cent and that of ringworm infection of skin is 41 per cent. Figueredo and

TABLE 1—SHOWING RESULTS OF EPIDEMIOLOGICAL SURVEY OF SCABIES AND RINGWORM OF SKIN

Diseases	No. of families	No. of members examined		No. of members infected	
		Adults	Children	Adults	Children
Scabies ..	25	52	60	52	60
Ringworm of skin	25	60	62	34	16

Desai (1949) found 171 clinically and bacteriologically positive cases out of 573 contacts of leprosy patients whom they examined. This makes the contagiousness of leprosy at 30 per cent. Pedrup (1959) reported the infectivity of staphylococcal infections to be 40-47 per cent in the general population and as high as 58-77 per cent in the hospital patients. Thus for every patient seeking medical advice for any of these four infections, there are others in the family who are already infected or are incubating the disease. Under the circumstances, unless the members of the whole family are brought under surveillance and treatment, the therapeutic approach is bound to fail. This fact is responsible for the high incidence of repeat attendance in these diseases. This situation requires proper epidemiological handling, for which the services of health visitors are necessary. The latter can also help in educating the public in elementary hygiene.

Another problem in this group of diseases is the chronicity of fungous infections and leprosy. Proper laboratory facilities are required for their diagnosis, and for investigations into many unsolved mysteries in the pathology, immunology and factors favouring susceptibility to these infections.

Leprosy has been considered by the Indian Government as well as by international agencies like the W.H.O. as a major problem and separate organisations have been set up to combat it. The question arises if this arrangement will effectively and economically serve the purpose. Thousands of patients prefer the skin department of a general hospital, rather than be branded as 'lepers' by attending special leprosy clinics. Moreover, we have only a few specialists in leprosy and many among them do not have an adequate understanding of the various dermatological conditions which masquerade as leprosy, nor are they trained in the fundamentals of basic cutaneous physiology and disease responses. Opinion is already veering round the necessity of approaching leprosy like other infective disorders and refraining from thinking in terms of institutional approaches of the past. The social stigma attached to these patients by long and ancient tradition can only then be removed. Under the circumstances of the paucity of trained personnel, investigative facilities of specialised nature, and finances, the interests of leprosy patients are more likely to be served best by its amalgamation with the department of dermatology in a general hospital. The same arguments apply to the field of venereal diseases. It is well known that many cases of leprosy and venereal infections are tackled by dermatologists. We should take a broader view from the vantage of the whole discipline of dermatology. This is not intended to decry the good work already done by dedicated leprologists and venereologists of the past. But such dedicated souls of necessity were few and far between ; they could hardly touch the fringe of the vast problem of handling the patients and tackling the disease on a national front.

The other chronic problem of fungous infections involve a special field of medical mycology. This latter requires adequate experience and training in the handling of many different organisms which are responsible for fungous infections of the skin, hairs, nails and subcutaneous tissues. Some fungi invade the subcutaneous and deep tissues and give rise to chronic mutilating diseases such as maduromycosis, actinomycosis and nocardiosis. Occasionally one may also encounter fungi giving rise to systemic infections like histoplasmosis, cryptococcosis, systemic nocardiosis,

systemic candidiasis, blastomycosis, sporotrichosis, etc. The latter diseases being rare, can easily be handled by dermal mycologists. In fact most significant contributions in this field have also come from the dermatologists. There is hardly a single dermatology department in our country with competent laboratory facilities to offer an effective help in the diagnosis and research in these diseases.

The total case load of syphilis has been reduced by penicillin therapy. For instance, there were 2,276 cases of syphilis out of 3,371 total new venereal disease cases in 1950 and 1,022 out of 3,144 in 1959. The number of cases of late syphilis requiring specialised knowledge and facilities for their management has also reduced and form only about 10 per cent of syphilis. The case load of urethritis has increased by 100 per cent and is 26 per cent of total venereal cases. The number of cases of chancroid remains the same in 1959 as in 1950 and is 12 per cent of the total attendance. Phagedaena has almost disappeared. The number of cases of granuloma and lymphogranuloma attending our clinic are 53 and 30 and form a very small percentage of the total attendance. They are less common in Western India. Hence this group of diseases can be effectively handled in a well-equipped skin department without requiring duplication of facilities. This is the situation in the majority of hospital clinics in India and abroad. The special venereal diseases organisation can hardly be justified under the existing changed circumstances.

Allergic disorders account for 11·8 per cent of the new case attendances, and constitute another major and difficult field of this speciality. In this group are problems of sensitisation of the human system and the skin to various microbial, physical and industrial contactants. This field requires investigative and diagnostic facilities of a specialised nature to take care of many cases of allergy and eczema. As yet there are no adequate facilities for investigation of these problems in our country. A report from this clinic (Dhurandhar, 1960) on the nature of sensitising substances causing contact eczema illustrates the necessity of vigilance against the use of an ever increasing number of synthetics and chemicals. It also shows the preventive role which the allergist has to play by focusing the attention of general merchandising and industrial communities to the problems they are likely to create.

Another field of dermatology which requires attention is the physical therapy methods. Various physical modalities like sources of ultraviolet rays, Kromayer rays, x-rays, electro-therapeutic procedures and chemical and radioactive compounds, should be handled by adequately trained personnel. There is no other field than skin diseases, where all these modalities are being as extensively used.

Taking an overall view of above problem we should start thinking of the personnel and the organisation to tackle these. The field of this speciality is vast but it has to be organised properly. It is not generally realised among medical people that there is enough work in this speciality to support well-trained specialists in most cities. They will automatically wrest this field, by their superior knowledge, from the hands of poorly trained physicians with an armamentarium limited to a few formulae, latest proprietary ointments and drugs detailed by the last detailer and also from the charlatans and the dispensors of proprietary magic ointments. Expensive advertisements in the lay press and on the radio by the latter indicate the size of this field, which requires handling by trained specialists. Elsewhere we (Desai, 1959) have mentioned the need for creating two types of specialists, viz., (a) those in the training centres with a longer academic training in basic sciences in addition to clinical dermatology, and those required to man the practical dermatologic problems at the district and mofussil levels, and to fulfil the needs of epidemiologic problems already mentioned. The latter could be less intensively trained in academic pursuits.

Next, let us see the state of medical facilities which exists today for the care of the vast problem of cutaneous ill-health. In most teaching centres, the dermato-venereology department is the tail-end of a medical organisation and the tail has even lost the wagging capacity. Most of these departments are only "table and chair cubicles" were "look, diagnose and prescribe" is the only ritual. There are no laboratory facilities attached to them. Some of the incumbents who are obliged to man these departments are not sufficiently trained and those who are trained, lose the thinking capacity in the sterile cubicles mentioned above for want of facilities to satisfy their intellectual curiosities. Better talents are attracted to other fields which provide better organisational, academic and financial returns and recognition. To take care of our country's skin disease problems which are not insignificant, we have a very few well-trained specialists who are available only in large cities. Many cities even with a population of 200,000 to 500,000 provide no dermatological help. Kandhari's survey (1956) on the existing facilities is an eye-opener and deserves serious study. The insignificant number of trained specialists in our country, consider-

ing the magnitude of the problems, can be realised by the fact that the U.S.A. with a population of a third of ours has more than 2,500 trained dermatologists compared to about 100 dermatologists in India, in the year 1955.

The organisation of skin and venereal departments should start first in the teaching institutions. A well-planned department should have (a) a clinical section—with a group to take care of day-to-day problems, (b) an epidemiological section to take care of epidemiologic aspects of venereal diseases, leprosy, scabies, pyoderma and mycotic infections, (c) laboratory facilities with training of paramedical personnel to be of assistance in the techniques of mycology, dermal pathology, allergy, leprosy and serology (the clinician may select one or more among them for specialised attention), (d) a physiotherapy department with trained personnel to take care of x-rays, ultraviolet rays and other radiations, under clinical supervision and for attending to mutilating diseases such as leprosy and (e) a research section to tackle various problems in each of the individual fields enumerated above. The last section will naturally be geared in scope to the capacities, training and interests of the personnel manning the clinic. Constant research should form an integral part of clinical medicine instead of the cloistered research workers who do not handle or know the problems pertaining to their own fields. A recent report (Wade, 1960) of this nature is an indication of the present state of affairs. The co-ordination outlined above will ultimately serve better in handling the patients.

In the ultimate analysis, the setup suggested above is not peculiar to this speciality alone. It could be used with suitable modifications for all the specialities. The main points at issue are (1) to integrate the epidemiology and research under the same roof with the clinical discipline and (2) to amalgamate the fields of leprosy and venereal diseases with dermatology.

References

Desai, S. C.—*Ind. J. Dermat. & Ven.* **25**: 123, 1959.

Dhurandhar, M. W.—*Ibid*, **26**: 25, 1960.

Figueredo, N. and Desai, S. D.—*Indian J. Med. Sci.*, **3**: 253, 1949.

Kandhari, K. C.—*Indian J. Dermat. & Ven.*, **22**: 119, 1956.

Pedrup, A. A.—*Acta Dermato-Venereologica*, **39**: 274, 1959.

Wade, H. W.—in 'Diffuse Leprosy' by Derbes, V. J., Monroe, S., Williams, O. P. and Walsh, J. J.—*Arch. Dermat.*, **81**: 221, 1960.

CASE NOTE

OPHTHALMOPLEGIA FOLLOWING ENTERIC FEVER

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Information about ophthalmoplegia as a sequela to typhoid fever is scanty. The bilateral form of internuclear ophthalmoplegia is relatively common, whereas the unilateral form is relatively rare. Encephalitic symptoms not infrequently accompany typhoid fever and various ocular palsies may occur. The lesions may be meningeal or focal in the brain substance and are probably due to perivascular infection of the central nervous system, the symptoms being frequently permanent.

The most common ocular manifestation is the abducens nerve paralysis, which is bilateral, while partial oculomotor or trochlear palsy or total ophthalmoplegia is a rare feature. Paralysis of the fourth and fifth nerves with sparing of the third nerve has probably never been seen.

Paralytic ptosis is very aptly corrected by insertion of hands of fascia lata from the lid margin to the frontalis muscle.

Case Report

S. R., male, aged 60 attended the ophthalmic outpatient department of Hamidia Hospital, Bhopal on 6-11-59 with complaints of inability to open both the eyes (Fig. 1) and nodding of the head for the last five years. The complaints appeared after continued fever for about 30 days in an attack of enteric fever. Simultaneously both the eyes were found deviated laterally.

From personal history it was found that the patient had married twice and had six children by the first and five by the second wife, and all the children died during infancy. Occasionally the patient used to take alcohol.

EXAMINATION

The patient wore his turban in such a way that both the dropped upper eye lids had to be raised partially to enable him to see.

Local examination showed paralytic ptosis on both the sides. Both his eyes were deviated laterally (Fig. 2), and wrinkles were visible on the forehead. On further examination, a central leucomatous corneal opacity was found in the right eye. Pupillary reactions were absent in both the eyes and the pupils were found dilated and fixed.

FIG. 1 FIG. 2 FIG. 3

FIG. 1—SHOWING PTOSIS OF BOTH THE UPPER EYELIDS.
FIG. 2—SHOWING DIVERGENT SQUINT. FIG. 3—SHOWING SATISFACTORY IMPROVEMENT OF PTOSIS AFTER FASCIA LATA GRAFT OPERATION

Ophthalmoscopy of both the eyes showed lenticular opacity, more marked in the left eye.

Visual acuity in the R.E. and L.E. was F.C. 1′ and P.L.P.R. 4+ respectively. Intra-ocular tension in the R.E. and L.E. was 22 mm. Hg and 20 mm. Hg respectively.

The blood pressure was 135/84 mm. Hg.

Neurological examination showed nothing beyond total paralysis of the third and fourth cranial nerves.

Investigations—Kahn test of blood was negative. Total W.B.C. was 8,770/c.mm. with 69 per cent polymorphs and 31 per cent lymphocytes.

The urine examination showed no abnormality.

X-ray of the skull and orbits, A.P. and lateral views, showed no abnormality. The paranasal sinuses appeared to be normal radiologically.

Examination of C.S.F. showed no abnormality, and even the Kahn test was negative.

Treatment—The patient was treated on medical line which consisted of:

1. Berin, 100 mg. was injected intramuscularly daily for two weeks.
2. Macrabin, 500 μg. was injected intramuscularly daily for two weeks.
3. Vitamin B-complex, 1 tablet, twice daily for 15 days.

As the patient showed no improvement with medical treatment, surgery was undertaken for the correction of the ptosis. The standard fascia lata graft operation was performed on the right upper lid. This gave satisfactory result (Fig. 3).

Following the treatment of the ptosis a recession of 12 mm. of the external rectus was performed in the right eye. The degree of divergent squint was fairly reduced.

COMMENTS

Medical treatment is usually of not much avail in paralysis of the ocular muscles of long standing. Surgery is of paramount importance in such cases. However a fair trial should be given to the medical treatment before undertaking surgery. Surgery is of value in the treatment of paralysis of ocular muscles only if some of the muscles are unaffected.

Correction of paralytic ptosis by the fascia lata graft operation is satisfactory.

Sparing of the sixth nerve is very rare and hence the case is reported.

SUMMARY

A case of ophthalmoplegia (due to paralysis of the third and fourth cranial nerves without involvement of the sixth nerve) folowing an attack of typhoid fever is described.

The case did not improve with medical treatment but responded fairly well to surgery.

ACKNOWLEDGMENT

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CALCUTTA, AUGUST 1, 1961

ANTINUCLEAR ANTIBODIES : THEIR ROLE IN SYSTEMIC LUPUS ERYTHEMATOSUS

Until 1948 the diagnostic criteria of the disease systemic lupus erythematosus (SLE) were not as precise as they are today. Hargraves *et al*[1] were the first to evolve a dependable laboratory test for the diagnosis of this condition. In smears from heparinised preparations of bone marrow which had been kept at room temperature for sometime they demonstrated a characteristic cell, the *lupus erythematosus* (L.E.) cell, which represented essentially the end-result of interaction between the *L.E. factor* (present in the serum of the patient) and nuclear material leading to the phagocytosis of a grossly altered nuclear material. Subsequent studies have shown that neither anticoagulant nor bone marrow samples are essential for the formation of L. E. cell[2, 3, 4]. This phenomenon is perhaps better demonstrable in clotted samples of peripheral blood.

L. E. cell may be described as a phagocytic cell which has ingested a homogeneous mass of nuclear material. The L. E. phenomenon differs remarkably from what is seen in the ordinary process of nuclear phagocytosis wherein the ingested nucleus undergoes no significant change in staining reaction. Nuclear phagocytosis is a non-specific phenomenon which may be present in a variety of unrelated conditions and has therefore no diagnostic significance. The 'Tart cell' (first described in a patient named Tart) represents such a phenomenon of nucleophagocytosis and is in practice easily differentiated from the *L. E. cell*. In contrast, the specificity of a *L. E. cell* is very great indeed. Three ingredients are necessary for this reaction : the L. E. factor in the serum, the nuclei to be altered and leucocytes capable of phagocytosis.

Initial studies on L. E. phenomenon as carried out with histochemical methods indicated that depolymerisation of nuclear desoxyribonucleic acid (DNA) is the first event in the alteration of the nucleus[5, 6, 7]. It was suggested that the L. E. factor in serum activated an intracellular desoxyribonuclease which in turn caused the depolymerisation. This concept of nuclear depolymerisation has now been invalidated by the detailed histochemical investigations of Goodman and Deitch[8]. These workers failed to show any change in the state of polymerisation of DNA in the L.E. transformation of nuclei. Instead, the initial swelling of cell nucleus was accompanied by a striking rise in the nuclear protein with loss of histone from the nucleus. They postulated "an influx of protein normally foreign to nuclei, a displacement of histone from its combination with DNA and association of the still polymerised DNA with the new protein". This new protein could be presumably identified as the L.E. factor which had exerted its effect by direct combination with a constituent of the nucleus, probably the DNA. It has since been shown that the L. E. factor reacts with the whole cell nuclei and also with isolated nuclear desoxyribonucleoprotein which consists primarily of DNA and the basic protein histone in salt linkage. Nucleoprotein quantitatively absorbs the L.E. factor and is then readily phagocytosed giving rise to L. E. cell. The reaction is abolished by removal of DNA or histone. Substitution of hyaluronic acid or polyethylene sulfonic acid for the DNA and replacement of histone by protamine would similarly affect the reaction. Nucleoprotein is the specific nuclear constituent with which the L. E. factor would react specifically[9].

The L.E. factor has rightly been regarded as an anti-nuclear factor consisting of one or more gamma globulin components that would bind somatic cell nuclei with antibody like specificity. The isolated serum factor has shown both the

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[1] HARGRAVES, M. M., RICHMOND, H. AND MORTON, R.—*Proc. Staff Meet. Mayo Clin.*, **23** : 25, 1948.

[2] HARGRAVES, M. M. AND OPPELL, W.—Progress in Haematology—Vol. I, 1956. Grune & Stratton, New York, p. 249.

[3] OGRYZLO, M. A.—*Canad. M. A. J.*, **75** : 980, 1956.

[4] SWARUP, S. AND CHATTERJEA, J. B.—*Indian J. Path. & Bact.*, **1** : 191, 1959.

[5] KLEMPERER, P., GUEFT, B., LEE, S. L. LEUCHTENBERGER, C. AND POLLISTER, A. W.—*A.M.A. Arch. Path.*, **49** : 503, 1950.

[6] LEE, S., MICHAEL, S. AND VURAL, I.—*Amer. J. Med.*, **10** : 446, 1951.

[7] KURNICK, N. B., SCHWARTZ, L. I., PARISER, S. AND LEE, S. L.—*J. Clin. Invest.*, **32** : 193, 1953.

[8] GOODMAN, G. C. AND DEITCH, A. D.—*J. Exper. Med.*, **106** : 575, 1957.

[9] HOLMAN, H. R.—Annual Review of Medicine, Vol. 11, 1960. Annual Reviews Inc., Stanford. p. 231.

physical and the immunological characteristics of typical human antibody globulin[9]. One of the intriguing points is the lack of any rigid species, cellular or organ specificity. The factor has been shown to be reacting with nuclear material of leucocytes, liver, spleen and kidney and with carcinoma cell or Hodgkin's disease cell[10].

It has recently been shown that in addition to L.E. factor, another serum substance is necessary for the phagocytosis phenomenon. This substance is present in normal serum and it resembles complement in some ways. In a subject with systemic lupus erythematosus, addition of normal serum was necessary for the L. E. cells to appear[11]. Complement is fixed during the reaction between antinuclear factors and nuclear constituents, but is not essential for the reaction. In the absence of complement, antinuclear factors can be completely absorbed from serum by nucleoprotein or nuclei. The present data would indicate that L. E. cells are produced by the activity of an autoantibody to desoxyribonucleohistone operating on the corresponding nuclear material. Antibodies to other nuclear constituents have been described but they *per se* are not capable of initiating the phenomenon, though they have some contributory role in the final morphological appearance of the altered nucleus[9].

In addition to antinuclear factors, the L. E. serum also contains anticytoplasmic bodies. The specific reactive constituent in the cytoplasm has not, however, been identified. Other autoantibodies have also ben described. These include the agglutinins against red cells, white cells and platelets. Clotting defects, positive Wassermann reaction, glomerular lesions in the kidney and the periarterial lesions in the spleen have all been explained on the basis of γ-globulins elaborated in course of the disease. In this context, it is worthwhile recording that the patients with SLE also exhibit an undue responsiveness to foreign antigens. They develop frequent transfusion reactions and are prolific producers of antibodies to rare blood groups as also to antibiotics[9, 10]. All these facts are evidences in favour of a gross immunological disturbance.

The trigger mechanism that sets off the aberrant immunological reaction is not known precisely. The behaviour of immunological system or rather the activity of the antibody forming tissues is presumably altered due to an intrinsic abnormality conditioned by various environmental stressors. An altered or abnormal immunological system fails to recognise autologous tissues and leads to the formation of abnormal antibodies active against autologous tissues which due to immunologic tolerance should not ordinariiy lead to any sensitisation phenomenon. Alternative theory of the antigenicity of various autologous tissues being altered (by infections such as a virus, or other environmental stressors) and the altered antigenic factors stimulating the normal immunological system for the production of specific antibodies cannot be completely excluded.

The exact pathogenetic significance of the L. E. factor is not known. The balance of available evidence would tend to indicate that the antinuclear L. E. factor as also the other anticytoplasmatic factors are not themselves pathogenic. These would appear to be the byproducts of an abnormal immunologic system which *per se* may not have a direct causal role in the pathogenesis of the disease. In contrast, the erythroagglutinins and the thromboagglutinins have been known to cause haemolytic anaemia and thrombocytopenic purpura.

Apart from systemic lupus, positive L. E. tests are not common, although they have been reported in rheumatoid arthritis, scleroderma, dermatomyositis, and other related collagen disorders, Sjogren's syndrome, cirrhosis of liver, hydralazine syndrome and a miscellaneous group of hypersensitivity states. In systemic lupus, even with relatively crude techniques, a high titre of antinuclear factor is demonstrable in practically all the cases. In other conditions, the incidence of a positive test is extremely infrequent even when more sensitive methods have been employed. It is possible that all cases showing a definitely positive L. E. test reflect an underlying common factor of immunologic disturbance. In investigative study such a common denominator may provide a lead for a clearer elucidation of disorders of obscure aetiology and ill defined pathogenetic evolution. Out of all these theoretical considerations what still remains to be of supreme practical importance is the value of the L. E. test in the diagnosis of SLE. A diagnosis of SLE is now considered practically untenable when the L. E. test is negative. Similarly demonstration of a positive L.E. test remains an almost 'must' in the diagnosis of SLE.

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[10] WALFORD, R. L.—Leukocyte Antigens and Antibodies, 1960. Grune & Stratton, New York. p. 107.

[11] AISENBERG, A. C.—*J. Clin. Invest.*, **38**: 325, 1959.

CURRENT MEDICAL LITERATURE

Arteritis in Rheumatoid Arthritis

SCHMID, F. R., COOPER, N. S., ZIFF, M. AND MCEWEN, C. (*Am. J. Med.*, **30** : 56, 1961) from the Departments of Medicine and Pathology and the Rheumatic Diseases Study Group, New York University College of Medicine, and the Third (New York University) Medical Division, Bellevue Hospital Centre, New York City, New York, write :

The clinical and pathologic features of seventeen patients with rheumatoid arthritis and histologically proved arteritis were examined and compared with the findings in fourteen other patients with arthritis who had a negative biopsy. Of the seventeen patients with arteritis, eleven had a necrotising lesion. The reports of an additional eighty-one patients with arteritis, described in the literature, were surveyed for comparison with those of the present study.

Several findings were more commonly associated with the patient with necrotising arteritis. These included a higher incidence of episcleritis, peripheral neuritis and the serum L.E. factor. The presence of these findings is suggestive evidence of necrotising arteritis. Subcutaneous nodules and clinically diagnosed pericarditis were noted equally in patients with either type of arteritis but infrequently in the patients with a negative biopsy.

No precipitating factors for arteritis were found. Evidence for the suggestion that the use of corticosteroids is related to this complication is not convincing, although more cases of necrotising arteritis have been reported in the era after cortisone; the data lend some support to the suggestion that in some patients corticosteroid may promote transformation of non-necrotising to necrotising arteritis.

The data do not finally answer the question whether arteritis, especially of the necrotising type, is a fundamental event in the pathogenesis of arthritis or, alternatively, that arteritis and arthritis are diverse manifestations of rheumatoid disease.

Jaundice in Hodgkin's Disease

LEVITAN, R., DIAMOND, H. D. AND GRAVER, L. F. (*Am. J. Med.*, **30** : 99, 1961) from the Medical Neoplasia Service, Department of Medicine, The Memorial Centre for Cancer and Allied Diseases; the Lymphoma Section of the Division of Clinical Chemotherapy, The Sloan-Kettering Institute for Cancer Research; and the Department of Medicine, Cornell University Medical College, New York, write :

The pertinent literature dealing with jaundice in Hodgkin's disease is reviewed, and an analysis is made of a series of 116 cases of jaundiced patients with Hodgkin's disease observed at the Memorial Centre. The pertinent pathologic findings in fifty-seven patients who came to autopsy also are presented.

Evaluation of the cause of jaundice in Hodgkin's disease often is difficult. The chief cause of jaundice in our autopsy series was, in order of frequency, liver involvement with Hodgkin's disease (70·2 per cent), no satisfactory pathologic or clinical explanation of jaundice (14 per cent) haemolytic anaemia (5·2 per cent), extrahepatic bile duct obstruction due to tumour (3·5 per cent), hepatitis (3·5 per cent), choledocholithiasis (1·8 per cent), cirrhosis (1·8 per cent).

The conventional liver function tests were not very helpful in establishing the cause of jaundice. Liver biopsy, whenever feasible and not contraindicated by the danger of haemorrhage, should be used more extensively in order to establish the cause of jaundice.

Some therapeutic considerations in the jaundiced patient with Hodgkin's disease are discussed.

Relationship of Temperature to Sickle Cell Anaemia

RUBENSTEIN, E. (*Am. J. Med.*, **30** : 95, 1961) from the Department of Medicine, Standford University School of Medicine, and the Department of Clinical Physiology, Community Hospital of San Mateo County, San Mateo, California, writes :

The high viscosity of sickle cell blood, relative to normal blood at the same haematocrit, is further increased at cool temperature. Thus, in addition to the factors of pO_2, pCO_2, and pH, the thermal condition of a tissue, such as the cool superficial structures of the lower leg, is important in the localisation of sickle cell disease lesions.

It is suggested that environmental temperature may play a role in the expressivity of the underlying genetic disease, and that climatic factors therefore may influence the world distribution of the trait.

Effect of Reduced Glomerular Filtration Rate and Responsiveness to Diuretics

REUBI, F. AND COTTIER, P. T. (*Circulation*, **23** : 200, 1961) from the Medical Policlinic, University of Berne, Switzerland write :

Clearance experiments have been performed in 24 subjects with different levels of glomerular filtration, suffering from renal disease without oedema, in order to compare the diuretic, saluretic, and kaliuretic responses to a single intravenous injection of meralluride, chlorothiazide, or both together. The inulin clearances of these patients ranged from 5·9 to 135 ml. per minute. The effects of the drugs were studied under constant loading with saline over 3 hours after injection.

Our results indicate that over a wide range (15 to 20 ml. per minute up to normal values) a permanent reduction of the glomerular filtration rate has little influence on the diuretic and saluretic effects of meralluride or chlorothiazide. Below 15 to 20 ml. per minute a further reduction results in a sharp decrease in the diuretic and saluretic actions. This can be best explained by assuming that the diuretic agents block an increasing fraction of the tubular reabsorption of water, sodium, and chloride related to the decrease in glomerular filtration rate. This fraction, however, seems to be limited to 30 to 40 per cent of the filtered load. Some dispersion in the glomerulo-tubular activity may account for the splay of the experimental curves.

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At high levels of glomerular filtration the diuretic and saluretic actions of meralluride and chlorothiazide are additive. At lower levels of filtration, such a summation effect is not demonstrable. Apparently, both drugs given together cannot block the reabsorption of more than 30 to 40 per cent of the filtered load.

A single injection of chlorothiazide does not lower the arterial blood pressure of hypertensive subjects, loaded with saline, but produces a slight decrease in the glomerular filtration rate, averaging 7 per cent.

Antihypertensive Actions of Benzothiadiazines

WINER, B. M. (*Circulation*, **23** : 211, 1961) from the Department of Medicine and the Yamins Research Laboratory, Beth Israel Hospital and the Department of Medicine, Harvard Medical School, Boston, Massachusetts, writes :

Blood pressure, body weight, extracellular fluid and plasma volumes, 24-hour exchangeable sodium and potassium, and serum potassium were reduced after 6 to 8 weeks of administration of chlorothiazide in 20 non-oedematous hypertensive subjects. The loss of weight, water, and sodium approximated the loss of a litre of isotonic extracellular fluid.

The addition of 20 g. of salt daily to hydrochlorothiazide therapy in nine patients and chlorothiazide therapy in one patient returned body weight and blood pressure to pretreatment levels, but further lowered 24-hour exchangeable potassium. The addition of 8 g. of salt daily usually failed to restore body weight to control levels and did not oppose the antihypertensive effects of chlorothiazide.

Expansion of plasma volume by dextran to levels slightly above pretreatment values was associated with (1) a rise in systolic blood pressure but not to control levels and (2) no significant change in diastolic levels in 10 patients during administration of benzothiadiazine.

The antihypertensive effects of benzothiadiazines are due to sodium depletion and are not related to potassium loss. At least two mechanisms of antihypertensive action must be involved, one related to the effects of oligaemia, and another possibly to an impairment of the function of a humoral or neurogenic pressor system.

Atrial Septal Defect in Children

EVANS, J. R., ROWE, R. D. AND KEITH, J. D. (*Am. J. Med.*, **30** : 345, 1961) from the Department of Paediatrics, University of Toronto, and the Research Institute of the Hospital for Sick Children, Toronto, Canada, give in the following lines the summary of their observations on the clinical diagnosis of atrial septal defect in children.

The clinical features, including electrocardiographic and fluoroscopic examination, have been reviewed in 186 patients with atrial septal defect proved at surgery or necropsy to determine whether or not the site of the defect and the presence of complicating lesions can be recognised by clinical assessment.

The electrocardiogram proved to be a satisfactory method of differentiating secundum from primum defects in all but a few patients in whom the mean axis of the QRS complex was indeterminate and the frontal vector formed at flat loop or figure-of-eight pattern about the horizontal plane.

The clinical features of ostium secundum defects followed a uniform pattern. Variation from this pattern suggested pulmonary hypertension or a complicating lesion such as pulmonary stenosis, mitral stenosis or ventricular septal defects. The presence of partial anomalous pulmonary venous drainage could not be identified prior to cardiac catheterisation.

The characteristic feature of persistent ostium primum defects, with or without abnormality of the atrioventricular valves, was the counterclockwise frontal vector with left axis deviation in the electrocardiogram. When the mitral valve was cleft, clinical evidence of mitral incompetence was noted in two-thirds of the patients. Additional signs of tricuspid incompetence were lacking when both atrioventricular valves were cleft.

Common atrium was recognised by the presence of cyanosis at rest and left axis deviation of the P wave with a relatively short P-R interval.

Patients with common atrioventricular canal had the same type of counterclockwise vector loop at the ostium primum group of defects but the remainder of the clinical features more closely resembled ventricular than atrial septal defect.

Natural History of Ventricular Septal Defects in Infancy and Childhood

LYNFIELD, J., GASUL, M., ARCILLA, R. AND LUAN, L. L. (*Am. J. Med.*, **30** : 357, 1961) from the Paediatric Cardiophysiology Department, Cook County Children's Hospital and Hektoen Institute for Medical Research, Chicago, Illinois, give in the following lines the summary of their observations on the subject :

Over 450 patients with ventricular septal defect have been studied during the past ten years to determine the natural course of the disease, 140 by cardiac catheterisation. In thirty-two patients, who form the basis of this report, serial cardiac catheterisation have been performed. Of these, twenty were below the age of two years, eleven were between two and seven years, and one was fifteen years old at the time of the first cardiac catheterisation. The interval between the first and second cardiac catheterisation in twenty-six patients was two to five years, and one to seven years in the remainder.

A high incidence of pulmonary hypertension associated with a marked increase in the pulmonary blood flow was noted in the first two years of life. The pulmonary arterial pressure decreased in sixteen of the thirty-two patients. A marked tendency for the pulmonary blood pressure and flow to decrease after the first year or two of life was noted, especially in those with initial mild and moderate pulmonary hypertension.

In three patients and in another case not included in the present series manifestations of infundibular pulmonary stenosis appeared, due to the development of a pressure gradient at the right ventricular outflow tract. At surgery there was hypertrophy of the crista supraventricularis in one, and in the other three cases it was also accompanied by the typical anterior deviation of the parietal band seen in tetralogy of Fallot.

A progressive rise in pulmonary resistance associated with severe pulmonary hypertension was noticed only in three patients, who already had a considerably elevated pulmonary resistance at the time of the first cardiac catherisation. In all three patients the pulmonary flow remained in excess of the systemic flow and no significant right to left shunt occurred. No patient with normal or slightly elevated pulmonary resistance at the time of the first catheterisation subsequently had a marked increase in resistance.

These studies demonstraate that in ventricular septal defect there is a definite tendency for the pulmonary artery pressures to fall after the first or second year of life, and that there is no evidence for rapidly progressing and irreversible pulmonary hypertension in early childhood. The point is important in relation to surgical intervention.

Myxoma of Bone in Childhood

SCAGLIETTI, O. AND STRINGA, G. (*J. Bone & Jt. Surg.*, **43A**: 67, 1961) from the Istituto Ortopedico Toscano dell' Universita di Firenze, Firenze, write:

A rare neoplasm of bone which shows great resemblance to that referred to in the literature as chondromyxoid fibroma is described. Two new cases are reported and three similar ones previously published are mentioned in brief.

The characteristics of the neoplasms that differentiate them from chondromyxoid fibromata are: onset in childhood, pronounced symptomatology, rather rapid course, predominance of myxoid tissue, metachromasia in the ground substance, and invariable recurrence after simple curettage. In view of these traits it is proposed that this tumour be called myxoma of bone. Surgeons are advised to treat these tumours by radical local resection.

Prognosis of Fractures of the Acetabulum

ROWE, C. R. AND LOWELL, J. D. (*J. Bone & Jt. Surg.*, **43A**: 30, 1961) from the Fracture Clinic, Massachusetts General Hospital, Boston, write:

An end-result study of ninety-three acetabular fractures in ninety patients followed for from one to twenty-seven years, or for an average of six years, is presented. These fractures were classified as undisplaced posterior, inner-wall, and superior or bursting fractures. The prognosis would be different in the different types of fracture, but, in general, the prognosis was found to be more favourable than would be anticipated from current reports in the literature. The more favourable outlook for this fracture derived from this study is perhaps due to the fact that the patients studied were all those whose initial treatment was in one hospital. This gave a more representative balance between the good and poor results.

The outcome of the hip appeared to depend primarily on the condition of the dome or weight-bearing portion of the acetabulum, the condition of the femoral head, the adequacy of the reduction of the dislocation, and the stability of the joint after treatment. The clinical and roentgenographic findings in the affected hips one year after injury were found to be a most reliable guide to the ultimate prognosis of the hip, since definite changes were noted at one year in those hips that deteriorated.

CURRENT TOPIC

WORK OF WORLD HEALTH ORGANISATION IN 1960

The most noteworthy activity of the World Health Organisation (WHO) in 1960 was the help given to the Republic of the Congo to enable it to meet the emergency that occurred after the attainment of independence.

"The way in which WHO responded to this challenge is one of the best proofs of the soundness of its structure and of the maturity it has reached in the barely twelve years of its existence, "said Dr. M. G. Candau, WHO Director-General, in his introduction to the Organisation's Annual Report for 1960, submitted to the Fourteenth World Health Assembly that opened in New Delhi, February 7, 1961.

Dr. Candau added that it was clear by September that through an efficient coordination of the work of the United Nations, of WHO, of the International Committee of the Red Cross and of the League of Red Cross Societies, the best possible use was made of the international resources which were put at the disposal of the newly independent countries.

WHO also was able to work out a programme for the training and education of Congolese medical and paramedical personnel, at the same time recruiting the foreign personnel needed now to staff basic health services.

Communicable diseases: There was significant progress in 1960 in the various fields related to WHO's vast *malaria eradication* programme. Sixty-one countries or territories are known to be fully engaged in malaria eradication work, and in another nineteen the health authorities are on the point of adopting their final plans. In the majority of these countries WHO is giving direct help, advisory services, fellowships and other means of training, and supplies and equipment.

Progress was also registered in the control of other communicable diseases. Efforts to improve the diagnosis, treatment and prevention of *tuberculosis* were continued. Results of comparative trials of domiciliary and institutional chemotherapy for tuberculosis, conducted by the Tuberculosis Chemotherapy Centre, Madras, with WHO assistance, confirm that in suitable circumstances domiciliary chemotherapy is by no means inferior to institutional treatment.

The two methods were found to be equally effective as regards improvement after one year of treatment, relapse rate during the second year and new cases among family contacts.

Satisfactory progress was maintained in the national campaigns for the eradication of yaws, and it is estimated that over the last ten years half of the 200 million people living in yaws-endemic areas have been examined and, where necessary, treated.

Increased incidence both of venereal *syphilis* and of *gonorrhoea* has been observed in several countries. The fact that attack rates are higher in the lower age groups presents new social problems.

Veterinary public health: In veterinary public health, main emphasis was on the extension of research on *brucellosis*, which is still an important cause of disease in certain areas where infected sheep and goats cannot be eliminated for economic reasons, and on *rabies*. The reliability and accuracy of the laboratory methods for diagnosing rabies have been much improved in recent years, but more rapid and reliable method of diagnosis in dogs is required, and WHO efforts are directed towards finding a solution of this problem.

Virus diseases: The rapid progress in the study of live poliovirus vaccines reported in 1959 was accelerated in 1960. By mid-summer it was estimated that more than seventy million persons had received the vaccines. The largest studies were in the USSR where a strain developed in the US was administered to fifty million people, with an impressive record of safety and strong indications of efficacy. A meeting of the WHO Expert Committee on Poliomyelitis, in 1960, decided that all strains of the orally administered vaccine had been shown to be safe for administration to children and thus safe for use where poliomyelitis was predominantly a disease of childhood. In areas where polio affects a proportion of adults it was recommended that, for the time being at least, primary vaccination should be continued with the inactivated vaccine and that the oral vaccine should be reserved for the reinforcing dose.

Progress was made towards the eradication of *smallpox*, but rather slowly. India, where the disease has been endemic and where the highest number of cases has always been reported, is taking energetic measures to organise and develop a national eradication programme. Afghanistan, Indonesia and Pakistan also are intensifying anti-smallpox campaigns.

In the three years from mid-1957 to mid-1960 the causal agent of *trachoma* has been isolated in at least seventeen laboratories throughout the world. This important break-through, coming after fifty years of negative or inconclusive attempts, has opened up new fields of research. During 1960 WHO continued its assistance to trachoma research in various ways, as well as continuing assistance to governments in carrying out field projects for the control of trachoma and other eye diseases.

Environmental sanitation: WHO sanitary engineers and consultants visited countries in all six regions to promote the WHO programme for the improvement of *community water supplies*. Technical help was given to Peru on an important water supply project: a consultant in waterworks design helped the national water authority in Cuba to extend water supplies rapidly: in Ghana a team of experts is helping with the development of the national water supply programme and to set up a water and sewage board: plans were made to help the Malagasy Republic to organise and execute a national water supply programme, especially for the capital, Tananarive.

Public health services: WHO is advising governments on the planning of public health services sometimes as independent programmes, but often as part of of a wider scheme of social and economic development in which health, education, agriculture and other programmes are co-ordinated. The demand for nursing services, especially in the developing countries, is continually increasing, and in 1960 WHO provided 163 nurses to 45 countries to help with nurse and midwife training, nursing administration at national and state levels, and as members of teams with public health programmes and communicable disease control.

Health protection and promotion: Considerable progress was made in the large-scale programme for the *prevention of protein malnutrition* in infants and children, which is still the world's most important nutritional problem. This programme is being sponsored jointly by FAO, UNICEF, and WHO and its chief purpose is the production of cheap and suitable protein-rich foods. The practical results are perhaps most evident in Guatemala, where the Institute of Nutrition of Central America and Panama (INCAP) has developed a mixture of vegetable proteins called 'Incaparina', which is well accepted and is being distributed on an increasing scale, and in Africa, where mixtures of vegetable protein and skim milk are becoming popular in Nigeria and Uganda.

The part WHO can play in assisting work on *cardiovascular diseases*, particularly research, has become more clearly defined. The Organisation's Advisory Committee on Medical Research considered that priorities should be accorded to coronary heart diseases, arterial hypertension, pulmonary heart disease, cardiomyopathies, fundamental research into factors controlling circulation, and research into cadiovascular diseases in animals.

In order to further *cancer* research a scientific group that met in 1960 indicated, in order of priority, what studies on animal tumours should be undertaken in order to obtain information relevant to the solution of analogous problems in human beings. Some work was also done on the therapy of canine tumours, on the carcinogenicity of food additives, on lung tumours and soft tissue tumours.

Education and training: In all 1,006 fellowships were awarded for the period December 1, 1959 to August 31, 1960. The fellows came from 122 countries and territories; they studied in 83 countries and territories abroad. About 80 per cent were financed from the regular budget, 20 per cent from Technical Assistance Funds and 0·5 per cent by UNICEF. The acute shortage of physicians and other fully-trained personnel in the greater part of the world still imposes a high priority on training large numbers of auxiliary workers, and much attention was given to this matter during the year, as well as to medical education and graduate training in public health.

Medical research: Highest priority has been given to research on communicable diseases in the Organisation's newly-developed medical research programme, particularly those prevalent in the tropics, and then to research on cancer, cardiovascular diseases, radiation medicine and human genetics. As far as the type of work that WHO should support in this field, the Thirteenth World Health Assembly decided that services to research should be given priority over actual conduct of research, such as the standardisation of nomenclature and techniques, the setting-up of refer-

ence centres, the improvement of communications between scientists and the training of research workers.

Radiation and human genetics: WHO's work on ionising radiation and atomic energy in relation to health is concerned mainly with radiation health, which involves the health problems of the effects of ionising radiation on man, radiation medicine, or the applications of radiation and radioisotopes in health work, and human genetics.

Facts and figures: Regular budget for 1960—$18,113, 760; Membership—100 Member States; 2 Associate Members; Total staff as of September 30, 1960—2,041 of 63 nationalities, Headquarters staff—639.

NOTES AND NEWS

XV General Assembly of the World Medical Association

The 15th General Assembly of The World Medical Association will convene at the Copacabana Palace Hotel, Rio de Janeiro, Brazil, September 15-20, 1961.

Immediately preceding the Assembly from September 11th to 14th the Brazil Medical Association will hold a symposium on Arbor virus. General topics to be discussed will include: Definition, Nomenclature, Classification, Antigens and Antibodies, Tissue Culture, Clinical and Laboratory Diagnosis, Epidemiology and Prophylaxis.

Conclusions of this symposium will be presented in the scientific session of the General Assembly on September 16, 1961.

HARRY S. GEAR, M.D., D.P.H., D.T.M. & H.
SECRETARY-GENERAL, WORLD MEDICAL ASSOCIATION

The annual Conference of Medical Editors will consider "Problems related to medical publications in Latin America".

As a special feature the Instituto Britantan will provide demonstrations of the techniques of extracting venom from snakes.

Special topics on the programme of the General Assembly will include consideration of (1) Increased cost of Medical Care under Social Security Scheme, (2) Draft Code of Human Experimentation, (3) World Problems of Medical Education.

Harry S. Gear Takes Office

On July 3, 1961 Dr. Harry S. Gear of Johannesburg, South Africa succeeded Dr. Louis H. Bauer of New York as Secretary General of The World Medical Association.

Diagnostic Research

Now there are prospects for diagnosing diseases long before you ever know you are sick, a physician said recently at New York.

Blood tests for certain tell-tale chemicals would provide the tip off that a heart, kidney, liver or other organ was heading into trouble and perhaps even tell why. Then doctors could start earlier treatments, to prevent or minimise damage.

This research promise was outlined by Dr. Felix Wrobelwski of New York City at the opening scientific session of the 110th annual meeting of the American Medical Association.

This year the A.M.A. convention is introducing a new accent on the frontiers of medical research on the new ideas and trends and discoveries that create tomorrow's medicine.

New Medical Discovery

A Purdue University engineer, turned doctor, has enabled a research team to develop a device called "fatal heart monitor" which reduce stillbirths.

The device was developed by doctors from the Indiana University Medical Centre and Mario County General Hospital at Indiapolis. The team started working on the monitor in 1959, but encountered electronic engineering problems which they could not solve.

Dr. Robert Braunlin, graduate of the Purdue School of Engineering and now an I.U. Medicine Centre Doctor, provided the missing key with his combined knowledge of electronics and medicine.

The monitor is the size of a portable television set and allows physicians to listen to an infant's heart beat beginning several hours before birth. They may note irregularities and act to prevent stillbirths or lack of oxygen which can cause cerebral palsy or mental deficiency. The monitor also can detect when the umbilical cord is wrapped around an infant's neck, another common cause of stillbirth. The monitor has been used in 125 births so far.

Bombay and Kanpur Milk Schemes

The milk conservation schemes in Bombay and Kanpur will benefit from a 2·8-million-dollar allocation

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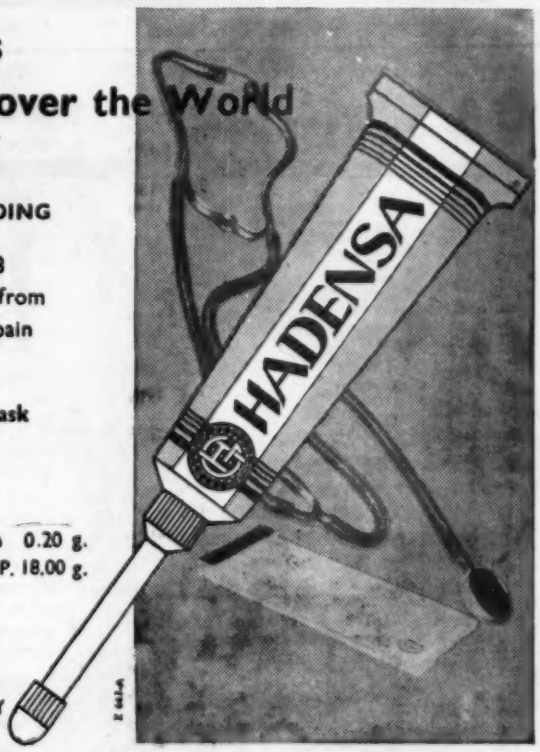

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made recently by the Executive Board of the U. N. Children's Fund to 21 child-care projects in 12 Asian countries.

The two schemes will receive 665,000 dollars and 100,000 dollars respectively from UNICEF, according to a press release issued by the U.N. Information Office, New Delhi.

The sum for Asia represents about 30 per cent of the total of some nine million dollars allocated by the Board for 83 projects in 51 countries and territories throughout the world.

The Board has also approved the main policy proposals of UNICEP's Secretariat, thus broadening the fields of action to include, among others, aid for national surveys of children's need.

Russia Presents Polio Vaccine

The outbreak of polio in Andhra a few months ago had been completely eliminated, Dr. Ivan Boudnik, the Soviet pediatrician in India, said on 6-7-61.

Polio was a very dangerous disease, he said. However the challenge of this danger had been met by the discovery of polio vaccines, especially the live vaccine discovered by the Soviet scientists.

Dr. Boudnik said the difference between this vaccine and the earlier one was that instead of being injected it was taken orally. Besides, it was easy with the children since it looked and tasted like candy. He disclosed that about 80 million people in Russia and nearly 13 million in Poland, Bulgaria, Cuba and India had been immunised with the live vaccine.

To check the outbreak in Andhra, Russia presented to India 100,000 doses of the live vaccine in April. Another 100,000 doses were supplied on 5-7-61.

In addition, 5,000 doses of the vaccine were presented to the Indian Red Cross Society recently by the Soviet Red Cross Society. This gift consignment would be repeated every three months for a year, he said.

Dr. Boudnik holds the chair of pediatrics in the Kiev Medical College. He had been in India for about a year now. He is expected to stay for another two years.

New Anti-Rabies Vaccine made in India

A live-virus vaccine for immunisation against rabies has been produced at the Haffkine Institute for the first time in India and will be marketed shortly, says PTI.

The flury vaccine, as it is called, consists of a strain of rabies virus grown in fertile eggs to reduce its virility to the extent it will not be able to cause fresh infection. Administered to persons, it creates immunity against infection from virulent strains such as entering the human body when a dog bites.

Release of the vaccine to the public follows four years of experiments at the Haffkine Institute following its experimental production at the Pasteur Institute in Coonoor.

The anti-rabies vaccine now in general use in India is grown in the brain matter from sheep, several thousands of which are killed every year to prepare it in quantities needed. The flury vaccine, on the other hand is simpler to make as it requires only eggs. This vaccine which is stated to confer immunity for two years is already in widespread use in the USA and the Soviet Union.

Tuberculosis Mortality Falls

Mortality due to tuberculosis has been brought down in Maharashtra in the past few years, the State Minister for Health, Mr. Homi J. H. Taleyarkhan, stated in Bombay on 10-7-61.

The incidence of tuberculosis had, however, to be checked, the Minister said.

He was addressing the 23rd annual meeting of the Maharashtra State Anti-Tuberculosis Association at Sachivalaya.

Infectious Diseases Hospital

Another hospital in Calcutta, Infectious Diseases Hospital, Beliaghata, is being converted into a teaching institution and for the purpose all necessary sanctions have been made by the Government of West Bengal. The Director and necessary staff and subordinates are being appointed shortly.

In this proposed college the students will have to undergo both theoretical and clinical courses of various infectious diseases like cholera, smallpox, diphtheria, tetanus etc. Arrangements for post-graduate research and study in these diseases will also be made in this institution.

Concern among Tuberculosis Experts

The Union Health Ministry's order to close down the internationally-run Tuberculosis Chemotherapy Centre in Madras by October this year is causing concern to TB experts in the country and abroad.

The centre, which started functioning in 1956 under agreements between the World Health Organisation and the Union Government and between W.H.O. and the British Medical Research Council, has done outstanding work.

Although these agreements were initially for a five-year period, both W.H.O. and the BMRC had offered to continue to help the centre in view of the value of the experiments.

There were indications from the Union Government that it would continue the project with the assistance offered at least until the end of 1963. The Indian Council of Medical Research, the body representing the Government on the project, is understood to have favoured a proposal that the centre should be made permanent. The Government at one stage seemed to be of a similar view.

Official Indian sources said that the Government's decision to close down the centre and shift the work to the National Tuberculosis Institute at Bangalore was taken to centralise all higher research in TB in one place.

But those associated with the Madras centre argue that the research work consisting as it does of important follow-up studies on about 1,000 TB patients, can only

be transplanted to another area at the cost of five years' research.

Although Indian officials said that the closure decision could be modified to extend the centre's life by a few months or a little longer with "minimum staff", they do not give any indication that the order would be radically altered. They said that since research work was of a continuing nature with one result leading to another inquiry, they could not continue the centre indefinitely.

The centre was founded to investigate methods of treatment of TB cases at home with cheap and effective drugs which would not be a source of danger to the community.

Studies by the centre have revealed that home treatment of TB by chemotherapy was highly effective, and there was little benefit extending this treatment beyond a year. These findings, which are of far-reaching importance, have, however, to be confined by a five-year follow-up programme at present in progress.

One of the significant results obtained at the centre is that the Indian tubercle bacillus differs in some respects from tubercle bacilli found in Europe and America. This, when fully proved, will naturally have an important bearing on the treatment of Indian TB patients.

It is learnt that W.H.O. has spent about Rs. 30 lakhs on the Madras centre while the Indian Research Council spends about Rs. 3·5 lakhs a year on it. British help has been largely in the form of nominating experts and in supervising the centre's work.

Fluorine in Water causes Disease

A new disease, which causes paralysis, thickening of bones, nervous disorder and ultimately death, has been found to be prevalent in the Punjab.

This was stated by Dr. Amarjit Singh, Principal of the Medical College, Patiala, at the annual gathering of Civil Surgeons and District Medical Officers of Health on June 27, 1961.

Dr. Amarjit Singh said that the disease, which had been termed as endemic fluocosis, was caused by the drinkinng of water with an excessive content of fluorine.

He said that the disease affected mostly villagers engaged in manual work who had to take a lot of water because of excessive sweating.

In a recent sample survey conducted in 14 villages with a population of 60,000 in Bhatinda District, out of the 3,000 examined, 130 were found to be suffering from the disease.

The incidence of the disease, he said was not likely to be lower than this in other parts of the country.

Dr. Amarjit Singh stated that fluorine content beyond the extent of one part in a million was harmful. In the State, the quantity of fluorine found in village wells had touched the figure of 14 parts in a million.

He said that presently there was no medicine which could cure the disease. He suggested that a detailed survey be carried out in the State and wells in the affected areas be dug deeper or the areas be supplied with canal water.

Scheme for Control of Cholera, Smallpox and Typhoid

A scheme for control of cholera, smallpox and typhoid by inoculation and vaccination in Calcutta Metropolitan areas comprising Calcutta Corporation and 31 Municipalities including Chandernagar Corporation and rural areas in between and bordering the Municipal areas is to start very soon.

The set up of staff for the Scheme will comprise a Headquarters Unit with an Epidemiological Section, and six Zonal Units—each Zonal Unit catering to the needs of about one million people on an average.

The estimated cost of the scheme during the Third Five-Year period is Rs. 126 lakh for recurring and Rs. 3·5 lakh for non-recurring, states a Press Note.

New Chest Clinic at Digri Sanatorium

The inhabitants of Garbeta, Salboni and Ghatal Chandrakona areas of Midnapore district, West Bengal hailed the opening of a new Chest Clinic at Digri Sanatorium by the octogenarian donor, Mr. Ashutosh Singh of Chandrakona Road on June 25. Indigent patients will get the benefit of free x-ay examination, laboratory facilities, etc. in the clinic.

The Superintendent of the Sanatorium, Major S. K. Ganguli, persuaded Mr. Singh to donate Rs. 10,000 towards the opening of the Clinic which will be a boon to the T.B. sufferers in the locality.

Foundation Stone of University College of Medicine Laid

Laying the foundation stone on 1-7-61 of the University College of Medicine building on Lower Circular Road, Dr. Roy spoke of the utility of an institution offering adequate scope for research in medicine.

Such an institution the University College of Medicine was intended to be, he said. Every progressive country today carried on research in medical fields and thereby kept in close touch with the "dynamic nature of developments in medical science."

The idea of setting up an institution of postgraduate medical studies was first mooted by Dr. Roy in 1944, when he was the University's Vice-Chancellor.

Stipends for Public Health Engineers

The Union Ministry of Health has decided to give financial assistance in the form of stipends, fees and other expenses to 240 public health engineers and auxiliary public health engineering personnel who may be deputed for training in the various public health engineering courses during the current year.

Candidates sponsored by the State Government, municipal corporations, improvement trusts and local bodies through State Governments and approved by the Ministry of Health are eligible for the assistance, says a Government Press release.

The stipends will be in addition to normal pay and allowances paid to the trainees by the State Governments or local bodies.

Public Health Education in Andhra

The School Health Education Committee appointed by the Government, had its first meeting on June 9 under the chairmanship of Dr. N. Ramlal, Director of Public Instruction.

The training of school teachers in health education and hygiene, under the auspices of the State Bureau of Health Education, Directorate of Public Health, was reviewed and the future programme for the year 1961-62 was approved in the committee. It is proposed to train two batches of teachers in Hyderabad city, one batch exclusively consisting of primary school teachers and the other batch of secondary school teachers. It is also proposed to train a batch of 50 teachers at each of the regional headquarters, namely Visakhapatnam, Guntur, Kurnool and Warangal during the year. It was also decided in the Public Health department that the question of extending a similar training programme to all the district headquarters will be taken up during the yearl 1962-63. The President, Teachers' Association, has whole-heartedly supported the above training scheme of the teachers and pledged his support for the programme.

DTM & H and LTM & H Courses

The nine months' courses of instruction for the (1) D.T.M. & H. (Diploma in Tropical Medicine and Hygiene) under Calcutta University and (2) L.T.M. & H. (Licentiate in Tropical Medicine and Hygiene) under the Faculty of Tropical Medicine and Hygiene, West Bengal will begin from the 25th October, 1961. The D.T.M. & H. course is open to medical graduates of Indian Universities or candidates possessing equivalent qualifications recognised by the Calcutta University for this purpose, who have been engaged in medical practice for a continuous period of at least 15 months or held residential appointment in a teaching hospital for at least one year. The L.T.M. & H. course is open to the medical licentiates registered in any State Medical Council of India but medical graduates may also be admitted, if they desire. Applications for admission in the prescribed form (obtainable from the School office) should reach the Director, School of Tropical Medicine, Calcutta by the 31st August, 1961.

IVth International Publicity Congress

The Fourth International Publicity Congress will be held in Madrid, Spain from 20th to 22nd September, 1961 under the auspices of the International Advertising Association.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Rudanti in Pulmonary Tuberculosis

SIR,—In February 16th 1961 issue of your journal, there appears an article on "Rudanti in Pulmonary Tuberculosis" by R. N. Tandon *et al* wherein specific reference has been made to an earlier paper published by me.

As this reference is rather misleading I am requesting you to please publish this clarification about my paper:

(a) I have never claimed that Rudanti alone is useful in active bilateral pulmonary tuberculosis.

(b) The results reported by me were not obtained with Rudanti alone as cited by Dr. Tandon but with Capyna, a compound in indigenous drugs of which Rudanti is only one ingredient.

(c) Further my patient had been treated with the standard therapy for over 2 years before being put on Capyna Compound.

(d) Since the patient is working in a semi-Government organisation, all records are preserved and are open to scrutiny. The patient had volunteered to have his name published but because of medical ethics I had refrained from doing so. yours etc.

Bombay — V. B. DAMLE

REVIEWS

Congenital Malformations of the Heart (two Vols)—By Helen B. Taussig, M.D., revised 2nd edition (1960). Published for the Commonwealth Fund by the Harvard University Press, Cambridge, Mass., U.S.A.; Vol. I: 10″×7″, pp. 204; $4.75; Vol. II: pp. 1049; $17.50.

Dr. Taussig's *Congenital Malformations of the Heart* first published in 1947 soon became an established book on the subject and has for long been out of print. Its revised publication, now in two parts, is very welcome.

The first volume, a slim 200 pages, covers general embryological considerations, and emphasises the value and limitations of diagnostic procedures, routine and specialised; it gives a masterly chapter on cyanosis. There is an independent index.

Volume II is the much expanded basic text material on the specific malformations dealt with in detail. In a thousand pages, well interspersed with the circulation diagrams which made the first edition so valuable, Dr. Taussig has succinctly given of her tremendous experience an exposition which is personal, uncrowded with references, and supplemented with case histories, illustrative specimen hearts, and comprehensive chapter-summaries reviewing the salient features of the specific malformation concerned.

This is altogether a very valuable book for cardiac clinicians, surgeons, radiologists, and as an established authority on the subject must take its place in every medical school library.

G. S. KARAI

Congenital Deformities—By Gavin C. Gordon; 1961, E. & S. Livingstone Ltd., Edinburgh and London; 10″×7″, pp. viii+128; 37s. 6d.

The aetiology of congenital deformities has stimulated medical investigators since the days of Hippocrates. Factors such as genetics, environmental influences and

mechanical factors on the developing embryo have been incriminated from time to time. Though mechanical factors were first insinuated by Hippocrates, genetics and environmental factors were stressed in more recent times by experimental work on developing embryo in animals.

Prenatal mechanical factors in human foetuses have been stressed in different congenital deformities, as talepes and congenital dislocation of the hip, and form the crux and main theme of this very stimulating monograph by Mr. Gavin who has studied this problem from different facets for the last twenty years. As a corollary to this study of mechanical factors in the causation of congenital malformations, other deformities, cerebral palsy, mental diseases and an enquiry into bone growth and repair have also been investigated.

The genetic factors, though well established, acting probably via their environment are physicochemical in nature and subtly modify or accentuate the expression of any gene to explain the skip of deformities in a generation, individuals and severity of malformation from person to person. Thus genetics and environmental factors are intermixed throughout the life process until death. Mechanical factors as trauma and infection are vicarious and potential agents to cause congenital malformation.

In 125 pages with 113 excellent illustrations of human foetuses in different periods of development, the author narrates graphically his absorbing thesis of mechanical pressure factors in the development of congenital deformities in various stages of intrauterine life.

The work is highly recommended for research workers, orthopaedic surgeons and others who are to face and tackle the problem of congenital deformities.

K. S. Bose

OBITUARIES

Major S. C. Dutt

Major S. C. Dutt, an eminent eye specialist of Calcutta, passed away on the 12th May, 1961. Major Dutt was born on the 3rd October, 1890 in Calcutta. His childhood was spent in Bihar, Madhya Pradesh and Punjab. After passing the Entrance Examination from the Punjab University, he moved to Calcutta, passed I.Sc. and joined the Calcutta Medical College. He graduated in 1913. He was appointed as a Ship's Surgeon for a few months, before settling down to practise as an eye specialist.

He had postgraduate training in the Moorfield Eye Infirmary in London and also at the University of Vienna under well-known professors of both cities. He was President of the Ophthalmological Society of Bengal and was elected President of the All-India Ophthalmological Society for the year 1953-54.

In 1950 he was invited by the International Congress of Ophthalmology to read a paper on Epidemic Dropsy Glaucoma in London. He was noted as much for his professional skill as for the broad humanism he brought to bear upon his work.

He was connected with Mayo Hospital since 1916-17 and served the Hospital as Resident Surgeon from 1921 to 1937. He was the Honorary Ophthalmic Surgeon of Mayo Hospital for a number of years, a position he held till his death. For the last few years, he was the Chairman of the Board of Governors of the Mayo Hospital.

In the Second World War, he joined as an Eye Specialist in the Indian Medical Service and served both Indian and British troops. His name was mentioned in the despatches for his excellent service and advice to the military.

He was connected with the Prevention of Blindness in Bengal and served the association for a number of years as a member of its executive committee.

As a sports enthusiast, he was connected with various sporting clubs of Bengal including the Bengal Olympic Association. Major Dutt was the Hon. Secretary and Treasurer of the Zoological Gardens, Alipore from 1951-56.

He was one of the most distinguished Rotarians in this part of the world. Joining the Rotary Club of Calcutta in 1939 he became its President in 1951-52. In 1953-54, he was unanimously chosen the Rotary Governor of Dist. 53 (now Dist. 325) and won universal appreciation for his admirable work. To him, Rotary was not merely a Service Club, it was a way of life and he practised its ideal throughout his distinguished career.

Major S. C. Dutt

Dr. N. K. Banerjee

Dr. N. K. Banerjee

Dr. N. K. Banerjee passed away on 27-6-61 at the age of 67. He had been suffering from Cardiac Asthma for about 3 years. He was born in the village Punra in 24-Parganas, West Bengal. After obtaining B.Sc. degree of the Calcutta University, he was admitted in the Calcutta Medical College and graduated in 1922. Dr. Banerjee was associated for sometime with the rural health improvement work organised by Late Sarat Chandra Bose and Subhas Chandra Bose in the village Kodalia.

Dr. Banerjee had been practising at Katihar for the last 30 years prior to his death. He established himself as one of the eminent physicians of the locality.

SUPPLEMENT
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III MAHARASHTRA TERRITORIAL MEDICAL CONFERENCE 1961, NASIK

The 3rd Maharashtra Territorial Medical Conference was held at Nasik under the auspices of Nasik Branch of I.M.A. on May 7-9, 1961. The H. P. T. College premises, Nasik, was selected as the venue of the Conference.

Welcome Address

At 9 A.M. on 7-5-61, the welcome song tuned the beginning of the Conference and messages from eminent persons were read, the Chairman of the Reception Committee Dr. S. V. Deodhar welcomed the guests and delegates numbering about 250 from all over Maharashtra State. He referred to Dr. Khanolkar gracing the occasion, a second time, previously in 1939 when he was the President of Maharashtra and Karnatak Provincial Medical Conference and now he is inaugurating the Conference. He also explained the historic, epic, religious and climatic importance of Nasik and how, it has increased by leaps and bounds in all directions and its consequent effect on the medical profession. He also referred to the foundation of the Nasik Medical Union laid by Capt. P. S. Gupte.

The Chief guest Dr. Khanolkar, very wittingly replied to a remark that by occupying the position of Vice-Chancellor of Bombay University, he has not lost interest in his former post of Director of Cancer Hospital. His speech was listened to intently by the audience overflowing the auditorium. He specially dealt with the problem of Medical education in India as compared with other countries and how the same can be adapted to suit our present circumstances.

Presidential Address

As scheduled, Dr. Kirtane's introductory speech was followed by the address of the new President Dr. V. D. Sathaye. Dr. Sathaye in his presidential address, said :

"During the last ten conferences the presidential addresses have frequently referred to the various problems facing us like medical education, indigenous systems of medicine, medical relief—urban and rural, public health and sanitation, working of the hospitals, food and nutrition, Indian Medical Council, family planning, health centres, ancillary personnel, Employees' State Insurance Corporation, Life Insurance Corporation, socialised medicine, post-graduate medical education, water supply and environmental hygiene and last but not the least our association.

Occasional references have also been made to medical research, role of specialists and general practitioners, drug adulteration and some immediate problems before us.

Medical Education

This problem has two or three aspects to be considered. Like experiments in other fields of education we are having our little experiments in medical education. The duration of the course we are varying from 4½ to 5 years after the old I.Sc. We are again considering whether the pre-professional course should be taught in a medical college or in a science college. The General Medical Council is understood to be in favour of its inclusion in a science college. As regards the preclinical course it is 1½ years. We are also considering the contents of the preclinical and clinical courses. There is one opinion that many of the details should be excluded from the curriculum. The object of the course should be to turn out a general medical practitioner and so it is no use burdening his mind with details which he almost forgets after the qualifying examination.

There is no doubt, a shortage of qualified medical men and for the next few years this problem will remain unsolved. The facilities for medical education will remain limited as the starting of medical colleges is not a simple matter and they will never keep pace with the enormous demand for admissions to medical colleges.

We are increasing the admissions to the existing medical colleges as the Indian Medical Council will favour 50 per cent increase in the admissions as a temporary measure. In 1951, the Indian Medical Council accepted in principle double shifts in medical colleges, wherever it was possible. Today in some colleges due to the increase in the number of admissions, there is almost a double shift, two batches at least in the preclinical course. This question should also be thoroughly looked into. But this question of starting more medical colleges has to be considered in more detail. I moved a non-official resolution in the Bombay Legislative Council on 4th September 1959 that the Government should appoint a committee, which should include representatives of the medical profession, to report on the possibilities of starting more medical colleges in the State and selecting their locations. In the debate it was pointed out that at present there is a great frustration of the student and whenever there is rationing and restriction on admissions there are bound to be malpractice.

Rich parents can send out their children to medical colleges where admissions are available on premium. But many deserving middle class students are deprived of a promising career. I suggested that the committee should decide the proper locations not based on local patriotism or local considerations. It was also suggested that Government effort should be coordinated with private effort. Compared to private colleges, government colleges require huge finance and due to service regulations it is difficult to obtain the requisite staff. Whereas private colleges, specially those sponsored by medical men, would cost considerably less and the staff position would also be favourable. So government should give liberal grants and facilities to these colleges. This point was accepted by the deputy health minister in the debate, and he said there that whereas the government medical college required an initial expenditure of nearly 2 crores, a private college could be started if government initially gave a grant of about 25-30 lakhs. Reference was also made to the proposal formerly made by Dr. Gilder that the preclinical courses should be kept in the bigger places and the clinical courses should be started at district places where the civil and other hospitals may be sufficient for the purpose. In the debate in support of the suggestion of starting only clinical unit, it was mentioned that for nearly 50 years, Oxford

DR. S. V. DEODHAR, THE CHAIRMAN OF THE RECEPTION COMMITTEE

had only the preclinical course of Anatomy and Physiology and the students went to London for the clinical course.

POST EXAMINATION TRAINING

Following the decision of the General Council of U. K. and to keep up the reciprocity, our Universities also introduced the post examination training for our students. In England it is the General Medical Council and not the University which lays down the conditions for this training and approves the list of hospitals for this training. Because unless students finish the training after qualification, they are not registered with the council. So qualification is the province of the universities and registration is the province of the General Medical Council. Moreover we have confused this training with rural bias and so much of the training period is wasted. We have to really consider our immediate needs and remember that the present medical curriculum is already heavy and lengthy and any further period of training must be useful and of practical help to the student and should be of as short a duration as possible.

REVIVAL OF LICENTIATE COURSE

The Medical licentiates through their association and from all possible platforms struggled for the abolition of the licentiate course. This course was started by the alien government to suit their service conditions. But today after thirteen years of Swaraj the present government is again thinking of starting this course under the plea of paucity of medical personnel and needs of village medical relief. An august body like the Planning Commission which should plan for better and progressive conditions has suggested the most retrograde step of reviving the licentiate course. We have to suffer from various fads of the present democratic government. While talking of a scientific and rational approach to problems, we in practice find that many things are done to suit the party and other needs. The united medical opinion is against the revival of this course. The Medical Council of India as well as all the State Medical Councils are against the revival. Institutions for training medical licentiates are not going to cost less, because some standards will have to be kept. If the amount of money proposed to be spent on starting a licentiate medical school is handed over to the medical profession, I am sure we will start medical colleges and run them efficiently. We in this state should offer a challenge to government and if we treat this question as an emergency measure and relax some age and other conditions, I am sure there will be a proper solution. Let the government take the medical profession in confidence and for every medical school contemplated by the government a medical college will arise if there is coordination between government and private effort.

MEDICAL COUNCIL OF INDIA

After a very long struggle by the Indian Medical Council, the Act of 1956 was passed and the medical licentiates got a small entry in the Medical Council of India. But we are playing the role there of mere spectators whose presence in the council is just tolerated. There is no change of attitude and the position of licentiates so far as recognition is concerned has not materially changed. This problem is further complicated because we have not succeeded in abolishing all the medical schools. A school in Punjab is still functioning and we are really apprehensive about the future.—If there was a definite pledge that there would be no more production of medical licentiates after a specified date, then a section of opinion in the council may support the demand for a common schedule. Today there has been a considerable opposition in the Medical Council of India, even to a common alphabetical register. So the medical licentiates who are in a common alphabetical register in the present Bombay Medical Register are again proposed to be kept in a separate part and probably on the old yellow paper in the Bombay or Maharashtra part of the Indian Medical Register. Fortunately the Government of India is in favour of an alphabetical register and so this may not happen.

You will all be surprised that the I. M. C. Act of 1956 has no preamble. Even the preamble to the 1933 Act has been dropped. So the basic function of laying down a uniform minimum standard of medical education, for the whole of India cannot be exercised. If a preamble was there in the Act, then the proposed revival of the medical licentiate course by some states would not have been even mooted.

This is indeed a serious matter and I feel that we should agitate public opinion in favour of medical education and registration being a central subject or at least on the concurrent list. The Chopra report at page 191, para 357, states : There should be all India standards of professional and technical education for health personnel and a stable and continuous long range health policy.

INDIGENOUS SYSTEM OF MEDICINE

Closely associated with medical education and medical relief is the question of the indigenous system of medicine in our state, Ayurved. This has been a controversial subject for the last several years and frequent references have been made to it in the previous addresses. Dr. Jivraj Mehta in inaugurating the 10th session of the Gujarat Medical Conference at Junagadh on 3rd May 1957 said that we should discuss freely the problem of indigenous medicine in an objective, scientific and unbiased manner. He said that whatever is useful in the way of drugs, principles and practices in these systems must be carefully sifted and brought over into modern medicine. He further said that the training in modern medicine should be compulsory for all who are permitted to practise medicine after an appointed day, as India cannot afford to have a less qualified body of doctors than other advanced countries of the world. I would consider this question from the following aspects.

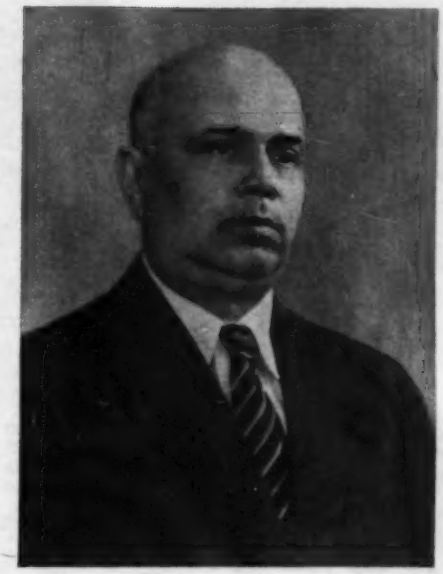
Do we visualise a National medicine for the whole of India? If we do, we must put a definite time limit, say the next 20 years or so, before which we must clean up the present confusion of ideas and systems. We must lay down the definite and minimum requirements of a basic doctor and see that a composite course is formulated if necessary. In the next 5 or 10 years we must find out what is useful in Ayurvedic drugs and incorporate them in our national pharmacopia. Unless we put a time limit there will not be any definite result. We must also assess what are the essentials of Ayurved that must be taught to our medical graduates so that they will have a full insight in the principles of Ayurved. We must have a new approach to this problem.

The Third Plan has allotted 8 crores for Ayurveda. I think a portion should be set aside to sift all the available literature in Ayurveda and prepare a text-book or text-books giving all the essentials preferably in English and then translated into Hindi or vice-versa. Then we will know exactly where we are. A time-limit of 3 to 5 years should be put on the preparation of these text-books. The Udupa report on page 165 has specially mentioned about the writing of text-books. Side by side a research chair should be established at least in one University in Maharashtra by government grant where a physician with M.D. qualification should be appointed to do research work in Ayurvedic medicine and he should have a ward in the hospital if necessary. The research professor may be sent to one of the post-graduate research centres in Ayurveda for a period of 6 months to get an initiation in Ayurvedic methods and principles.

I have carefully read the Mehta (Yodh) Committee report of 1947-48, the Chopra report of 1948, the Pandit Committee report of 1951, the two Dave reports for 1955-56 and the Udupa report for 1958 on the various aspects of the indigenous system of medicine. All these reports show that we are not clear in our minds about the future pattern of medical education. In the Udupa report on page 39, Pt. Shiva Sharma says that "The so-called Shuddha Ayurvedic curriculum merely differed from the mixed courses in two respects (a) that the quantum of Ayurveda teaching was increased and received greater attention and importance as against the allopathic teaching which was reduced to the minimum necessary requirement. (b) The allopathic teaching was put at the end of the course to enable the Ayurvedic student to grasp the tenets of Ayurved on a clean and unconfused mind before any additional subject was taught to him." So on one side the Shuddha Ayurvedists say that in the mixed course Ayurveda is not taught to the fullest extent. The minimum necessary requirement of allopathy is not decided by them but by allopaths themselves or some agreed body of scientific men.

On page 8 of the Udupa report it is stated "there has been a certain amount of misconception and confusion about the term Shuddha Ayurveda in the minds of the protoagonists themselves. While some of them agreed that science is universal and continually growing and should be incorporated in Ayurveda; others contend that Ayurveda is a complete science and needs no further accretions. It is felt that the new syllabus chalked out by the "Shuddha Ayurveda" people is only a rehash of the old integrated system of medicine and that even the pure Ayurvedic institutions have included in their syllabus modern science subjects.

The allopaths criticising the mixed course say that the Ayurvedists do not teach enough and the minimum necessary of allopathy. So we have to find out the basic minimum of allopathy that must be taught to the future medical practitioners. This is not difficult because that is already laid down and may be varied a little if necessary. As regards the basic minimum of the Ayurvedic course, I have already stated above that within the next 3 to 5 years, a text-book or text-books giving the essentials of Ayurvedic theory and practice should



DR. V. D. SATHAVA, THE PRESIDENT OF THE CONFERENCE

be compiled. So also on the side of the practitioners in modern medicine, a definite programme must be laid down so that we will begin and implement the programme of Ayurvedic teaching either before the graduate level or at the postgraduate level. Even the Udupa report at page 39 referring to conditions in China states that there also it is suggested that western trained doctors should study Chinese Medicine.

There is at present much controversy about the mixed course. The Shuddha Ayurvedists are only Shuddha in name. Then there has been much talk about integration. In real integration a full course of education in modern medicine should be the basis on which special training in Ayurveda should be engrafted. Every one including the Ayurvedic people would have to admit that a person with a full training in allopathy and a full training in Ayurveda will be the ideal medical practitioner of the future. He would be the natural termination of the evolution of the present Ayurvedic course.

In the beginning an entrant to the Ayurvedic course, specialllly the mixed course, was educated up to the S.S.C. and was admitted by an entrance examination. Then S.S.C. or Matriculation was compulsory. Then I.Sc. passing was compulsory. Now whether we continue the Shuddha or the Mishra course, a knowledge of anatomy and physiology, i.e., 1st M.B.B.S. should be made compulsory to anyone who wants to be a qualified practitioner in any pathy. Pt. Jawaharlal Nehru has made this clear when he said the following in Parliament: "To the question of medicine government have a scientific approach. Basic scientific knowledge of the human body was essential for those practising medicine, Ayurvedic or Allopathic. . . . A person who does not know what the body is composed of internally, does not know many things, which are well known now-a-days to modern science. We consider such a person is not properly qualified for any system."

We should also consider the present position of Ayurvedic Research. Since the last 25 years Ayurveda has received government recognition and it should now be possible to apply modern scientific methods for this research. In addition to clinical experiments it should

be possible to carry out animal experiments to test Ayurvedic theories. I would in passing refer to the traditional method of Guru Parampara for training students. There is nothing new in the apprenticeship method of hearing. But where we have now advanced educational institutions for different branches of learning, one wonders what is the advantage of going back to these methods.

On page 164 of the Udupa report it is mentioned that "It should be ensured that the students admitted have interest in the ancient science and aptitude for research and that they are not joining the course merely as a last resort." But actually the students' strikes in Bombay and other places show that the fears expressed in the report are too true. In fact if a secret referendum is taken from the students in the Ayurvedic colleges in the State it may bring out some revealing facts.

The Chopra report on p. 93 says that 80 per cent of the rural population is served by Vaidyas. On the same analogy 80 per cent of the rural population is served by bad roads, sanitation and educational and other handicaps. So that is no argument for continuing the bad roads. We who have a genuine pride for the indigenous system which served generations in the past and which even today has an inner core that has to be harnessed on a scientific basis should deplore such arguments. Ayurveda is not to be encouraged because it is ancient or Swadeshi or cheap or good for the 80 per cent rural population, but as I have said before it has to be incorporated on a scientific basis in the National Medicine of our country. Then there will not be this system or that or this pathy or that. We will have a basic doctor who has the irreducible minimum qualification and whose training includes everything of modern medicine and essentials of the indigenous system that are brought in line after proper assay.

In the end I would again reiterate that today the Ayurvedic institutions are in their own way progressing towards a synthesis. We have now to make an immediate beginning from the allopathic end and take up and absorb the essentials of Ayurvedic theory, practice and pharmacology. Time alone will show which is the more logical and correct method.

DELAY IN THE UNIFICATION OF LAWS

The composite bilingual Bombay State was formed on 1-11-1956. At that time there were different laws in the four regions regarding medical registration, Ayurvedic practitioners, etc. If the government had been alive to its duties, immediate steps should have been taken to see that a check was placed on the registration of new practitioners in the Ayurvedic register. Fortunately so far as the 1912 Act was concerned, its functions were nearly similar in the Vidarbha region. Cutch and Saurashtra had no medical council, if I am right. In the Marathwada there was the Hyderabad Act. So far as allopathy was concerned here was no confusion about registration.

But the government did not think it worthwhile to put a check on the new *en masse* production of Ayurvedic practitioners and their registration in Vidharbha. Even in the old Bombay region—Maharashtra and Gujarat the provisions of 1938 act was defeated by the inexcusable lethargy of the government. So a regular racket about the production of Ayurvedic practitioners is going on in the Vidarbha region and consequently in the old Bombay region. I raised this point in the discussion on supplementary demands in the Bombay Legislature on 14th December 1959. The deputy health minister admitted that Ayurvedic Degrees were freely available on the payment of some fees and a regular trading was going on. The government should now check the registration of Ayurvedic practitioners from 1957 onwards and if necessary appoint a credentials committee to verify the registration in the last four or five years.

SCHOOL HEALTH SERVICE

In social security measures in England, School Health Service was the first measure introduced in 1909 long before the National Health Insurance Act of Mr. Lloyd George which was passed in 1911. It was the foundation of the comprehensive National Health Service started in England in 1948. While we are too far away from these developments, we should at least make the beginning of a complete School Health Service in our State. The health of the school children has to be guarded in three or four ways. Firstly there must be a proper medical examination of all school-going children at proper intervals. Secondly mere medical examination is not enough. There must be an arrangement for the followup as well as treatment wherever the children are found medically unfit or defective. The third factor is to pay proper attention to their nutrition, because we have to take care of the health of the growing younger generation. The fourth aspect is the free supply of a minimum quantum of milk and a mid-day meal standardised on the basis of nutrition, if necessary at a subsidised rate. The Third Five Year Plan has made a specific reference to this and we hope our government will take up this programme themselves and give liberal grants to private agencies working in this field.

RURAL MEDICAL RELIEF

Time and again the question of rural medical aid is being raised. Gratuitous advice is given only to the medical profession to go to the villages by those who themselves like to live in big cities. The members of the medical profession have been doing charitable work and public service both in the urban and rural area. During epidemics they always come to the help of local and other authorities for inoculation and other preventive work. The association has sent medical volunteers for famine relief and other work. Members of the medical profession always help in surgical and eye-camps held in the different centres mainly to serve the needs of the rural population. They are also doing medical relief work in village centres and rural hospitals for the last several years.

Our State can show examples of hospitals conducted by the medical profession in many urban and rural areas on the lines of missionary hospitals. So the solution of this problem is not by making make-shift arrangements or starting sub-standard medical courses of 3 to 4 years. The mentality of our present rulers has not very much changed. While talking about the uplift of the masses we do not hesitate to suggest one set of qualified medical practitioners for the urban area and another, sub-standard, for the rural area. In fact the rural area really needs the services of highly qualified and experienced practitioners.

This problem is not an isolated one but linked up with the socio-economic conditions in the villages. Recently there was a seminar held in Bombay on the problems of Maharashtra and in the discussions on the pattern of industrial development in Maharashtra, reference is made to regional disparities. It is said that the less developed regions are fundamentally handicapped by inadequate transport and communication systems, power supplies and public utilities, social services and cultural amenities. A policy of industrial dispersal can, therefore, succeed only if a suitable basis is created for development of industrial sources of employment. This would mean that a large share of public investment should be allocated to the regions which are ill-equipped with economic and social overheads. In the absence of specially created favourable conditions, private sector is bound to concentrate its activities in the already developed regions which pay quicker dividends. So what is true about industrial development in rural areas is equally true about other social and cultural development. In fact it is the duty of government to plant cultural islands—medical practitioners, teachers

and social workers,—in rural areas and see that they thrive there by specially created favourable conditions. It is primarily a responsibility of government.

Every young medical graduate has a natural ambition to go to the top of the ladder. So if he is to be absorbed in service in the rural area, he has to be given sufficient inducement in the form of liberal emoluments and other facilities regarding housing, transport and education of his children. So unless there is an all-round development of the rural areas, the problem of medical relief cannot be solved in an isolated manner. Considering the various development programmes now going on, this problem of rural medical relief will find its solution in the near future. During the last 15 years we have made considerable progress in road development and in the years to come many of the bottlenecks will be removed and almost any point in the rural area will be connected to the main arterial roads by suitable approach roads. This will remove the one great obstacle in the manning of village medical centres whether run by government or privately.

So the process of urbanising the rural areas is already on its way.

SUBSIDISED MEDICAL PRACTITIONERS

This scheme was started by the government to get over the difficulty of getting qualified medical men to settle in the remote rural areas. When the scheme was first started the idea was to encourage medical men to settle in a spot where there was no qualified medical practitioner in an area of about 5 miles radius. They were to be given a fixed grant which was to be reduced in a sliding scale in a specified period. But as at present worked, the government is not only exploiting the S.M.P.s but going back upon its written and unwritten promises. Primary health centres are being started in close proximity of the S.M.P. centres. The S.M.P.s are now liable to transfer, which was not even remotely thought of when the scheme was started. The government should radically revise the working and terms for these centres. They should wherever possible engage, at these centres, regular members of the medical cadre. Where private practitioners are engaged, they should be given revised terms and conditions which should be specified and followed. They should be treated as private practitioners and government inspection should be confined to find out whether the specified conditions are followed. The scheme is intended to plant a medical relief centre in a rural spot and so the question of transfer should never arise. If necessary the association may appoint a committee to study this question and submit a definite scheme to government.

HOSPITALS IN MAHARASHTRA

There are today in Maharashtra, hospitals run by government or local authorities, missionary societies, and private agencies. So far as the various district government hospitals are concerned, a few years back there were insufficient facilities for x-ray and other diagnostic and other equipment. Conditions are now improving but even today the supply of drug and dressing, etc., is insufficient. The minimum facilities at the district civil hospitals should be in the nature of well-equipped clinical and bio-chemical laboratories, blood-banks, x-ray, availability of infusions in sufficient quantities and antibiotics and dressings, etc. So far as the hospitals run by private agencies are concerned, the government should liberalise its policy of giving grants to these hospitals. Just as there is a grant-in-aid code for the education department, the medical department should also formulate a grant-in-aid code. While many private hospitals have been doing excellent work for the last several years, grants are given only to a chosen few. In the 26th report of the Estimates Committee of the Bombay Legislature submitted in August 1958, there is the following reference on pages 10 & 12: "There is a scheme of making grants to private hospitals and dispensaries, under the Second Five Year Plan, which provide medical facilities in rural and urban areas of the state. The scheme is intended to encourage, and supplement the resources of private endeavour in the field of medical relief. A sum of Rs. 20·56 lakhs has been provided for the Plan period. The grant is made on the basis of 25 per cent of the approved expenditure or the deficit, whichever is less, so far as the former State of Bombay is concerned and on the basis of 50 per cent of the deficit in the former Saurashtra State . . . . Government is trying to unify all these rules so as to adopt a uniform basis in regard to these grants. It was urged that the present basis of 25 per cent of approved expenditure of the deficit, whichever is less, is not quite just and equitable in the case of all such institutions." These charitable hospitals in many cases take over all the burden of the government of providing medical relief to the public. They also supplement government medical relief in many areas. I hope government will take early action in this matter. May I also suggest that a Voluntary Hospitals' Association may be started in Maharashtra so that we can make some united proposals and demands to government.

THE COLLEGE OF PHYSICIANS AND SURGEONS, BOMBAY

The college was originally started on the lines of the Royal Colleges of Physicians and Surgeons in England. But it was exclusively an examining body for tht medical licentiate course. The college later on started some postgraduate diplomas. It was supported and flourished on the medical licentiates who were its major constituents but have been denied any representation for all these years. The medical licentiates as a class and through their representative association resolved on their voluntary self-abnegation in the larger interests of the solidarity of the medical profession. The college should now follow the example of its main constituents and give up its examining function and take up the important role of a post-graduate teaching institute. It has now outlived its original function and should now itself take up the new role.

REFRESHER COURSES

Efforts have been occasionally made to conduct refresher courses in some places, in the past. But government should conduct these courses once a year at all the district civil hospitals. These courses will be useful not only to members in the service but also to private practitioners.

LIASON BETWEEN THE MEDICAL AND EDUCATIONAL DEPARTMENTS

Medical education is a responsibility of the health department. But for proper coordination there should be a medical joint secretary attached to the education department or vice-versa.

OUR ASSOCIATION

Now lastly I will come to our association. It should be our duty to increase the membership of the branch and enlarge its activities and increase its prestige and importance both before the government and the public. We have to work hard at three levels, the levels of the local branch, the Territorial branch and the Central Council.

At the local branch level, we must carry on a membership drive to enrol all eligible members in the area of the branch and round about. Some of the bigger branches can establish health museums with the cooperation of the local bodies. They can also carry on some medical relief work in suitable centres, preferably in the rural areas.

The Territorial branch should keep a close watch on our interests in government and public spheres. We

have to keep a watch on the different medical problems raised in the Legislature. We have to represent to government that a tax on drugs is ultimately a burden on the public. We have to see that essential drugs like Paludrine etc. which are not at present made here are available in sufficient quantity. We have to urge on the government for a more sensible application of the different provisions of the acts like the shop act etc. so far as the medical profession is concerned.

The Territorial branch has also to watch the interests of the members in the working of the Employees' State Insurance Corporation and the Life Insurance Corporation. The government should give representation to the association in the various committees and statutory bodies dealing with health and also consult it whenever necessary.

Today we have a very big area under our jurisdiction and we must see that a feeling of unity is created in all the composite areas. Let us give up regional bias and loyalties and work for a powerful and influential Territorial Branch. The Territorial office has to take the lead and guide the different local branches under its jurisdiction.

In the Central working of the association, if we are united and alive to our interests we can have our rightful share in its working.

In conclusion I have to state that the association must keep a careful watch on the various problems affecting the profession and even take an initiative in formulating a broad health policy for Maharashtra.

I will conclude with the following short quotation from the Chopra Report :—

"What Plato held to be necessary of political rulers, 'unless philosophers are kings, and kings philosophers, there shall be no cessation of the ills of mankind' is equally, if not more, true of phisicians."

The Scientific Session was inaugurated by Dr. A. V. Baliga who laid stress on the necessity of obtaining thorough practical knowledge on the existing system of medicine and surgery which has advanced to such an extent that one will have to ask what surgery and medicine can not do for the welfare of humanity as a result of research in these lines.

Several papers on important subjects were read by specialists and distinguished medical practitioners, some of which were "Mitral Surgery" by Dr. Y. G. Bodhe. A new Antihypertensive Agent by Dr. K. K. Datey, and a very interesting panel discussion on Jaundice by Drs. Modak, N. G. Talvalkar, Patel and M. G. Talvalkar; Preventive Medicine in General Practice by Dr. P. N. Pradhan; Topical and Systemic application of Triamcenolone in Dermatologic Practice with coloured slides by Dr. Shriniwas N. Ranade and Role of Antibiotics in Emergency Surgery by Dr. V. B. Davalbhakta. Further instructive lectures on Undergraduate and Postgraduate Medical Education by Dr. C. N. Chandrachud and Dr. R. V. Sathe were delivered.

In the Open Session the folowing Resolutions were passed unanimously :

1. The 3rd Maharashtra Territorial Medical Conference is of opinion that the so called "Integrated" medical course and curriculum has not fulfiled its objective and a committee should be appointed by Government to assess the results.

2. The 3rd Maharashtra Territorial Medical Conference is of opinion that the I.M.A. should be given representation in the regional and local committees of the E.S.I.C.

3. The 3rd Maharashtra Territorial Medical Conference is of opinion that the I.M.A. should be taken in confidence in the appointment of Medical Examiners by the Life Insurance Corporation.

4. The 3rd M. T. Medical Conference resolved unanimously that a Medical College should be started in Sholapur, in view of the fact that clinical facilities and the bed strength and the post-graduate qualified personnel in Sholapur are adequate and also in view of the fact that this proposed college is sponsored by the Sholapur Medical Education Society with the full support of the I.M.A. Sholapur Branch. This conference is further of opinion that in view of the fact that it will be economical for Government to start a medical college at Sholapur, it should be given top priority in the 3rd Five Year Plan.

5. The 3rd M. T. Medical Conference is of opinion that the Medical examination of all the school going children at proper intervals is the responsibility of the State and suggests that the Government should make arrangements for (i) the medical examination at proper intervals, (ii) arrangements to the follow up and treatment for defective children, (iii) providing nutrition in the form of milk or a mid-day meal at a subsidised rate if necessary.

This Conference is also of the opinion that the Government should give liberal grants to the branches of the I.M.A. or other agencies undertaking this work.

6. The 3rd M. T. Medical Conference disapproves of the present policy of delay and hesitation of the Maharashtra Government regarding the unification of the Medical Acts in the different regions of the State. This Conference further protests against the arbitrary manner in which the Maharashtra Medical Council (Bombay region) has been recently nominated by Government and further resolves that a regularly constituted Maharashtra Medical Council should be formed within a period of one year.

7. This Conference places on record its deep protest against the policy of the Maharashtra Government in demanding a compulsory bond for medical students seeking transfer from Gujarat and Saurashtra Medical Colleges to the colleges in Maharashtra region. In the opinion of this Conference the policy is against the fundamental rights given under the constitution.

8. The 3rd M. T. Medical Conference is of opinion that persons in B.M.S. class III holding qualifications registered under the 1912 Act, should be promoted to Class II, on a uniform basis, irrespective of their qualification.

9. The 3rd M. T. Medical Conference of the I.M.A. is of the opinon that in view of the starting of the Primary Health Centres the old scheme of the S. M. Ps has become redundant and has eventually created dissatisfaction amongst the S. M. Ps as regards their status honorarium and other facilities. This Conference urges upon the Government to integrate the present S. M. Ps into the P.H. units scheme on a full time basis and on revised terms.

10. As it is the practice of the Government of Maharashtra to nominate citizens from the State, distinguished in different sciences and facultfes, to the Maharashtra Legislative Council, this Conference of M. T. Branch of the Indian Medical Association requests the Government of Maharashtra that one member representing the M. T. Branch of the Indian Medical Association should be nominated to the Maharashtra Legislative Council at the next available opportunity.

11. In view of the desirability of associating expert medical opinion in the working of the various Universities situated in the State of Maharashtra, the 3rd M. T. Medical Conference of the I.M.A. requests the Government of Maharashtra that one member representing the I.M.A. should be nominated to the Court or the Senate of the Universities in Maharashtra by the Governor of Maharashtra, when such nominations are made by Government.

12. In order that the medical aspect of each District should be studied in great detail, this conference of the M. T. Branch of Indian Medical Association requests the Government of Maharashtra that a nominee of the local Branch of the Indian Medical Association should be taken on the District Development Board in each District when nominations are done by Government or the Collector of the District.

BRANCH NOTES

ANDUL BRANCH—In December 1960, the annual general function of the branch was held. The District Magistrate, Howrah was in the Chair and Dr. Himansu Kumar Roy was the guest-in-chief.

Dr. Tarun Banerjee spoke on family planning. Next, the members of the Association staged 'Sita' by Late Jogesh Choudhury. It was highly appreciated. A sum of Rs. 801·00 was donated towards Assam Relief Fund.

In May—An ordinary general meeting was held in the house of Dr. B. Mukherjee. Dr. B. Das was in the chair. The members were entertained with Tea. Refresher course class was held on 28-2-61. Dr. H. K. Roy spoke on Coronary Thrombosis and its Management. It was educative to the medical practitioners of the locality.

In June 1961, an ordinary meeting was held in the house of Dr. N. Bhattacharjee. The members were sumptuously fed by the host. Dr. B. C. Singh spoke on Cerebro Vascular Disorder.

BALLIA BRANCH—A meeting of the branch was held in the District Hospital, Balia under the presidentship of Dr. Ved Ratna, Civil Surgeon. Dr. H. M. Bhatnagar presented two cases of Tubercular Meningitis, both children. Its pathogenesis, signs, symptoms and treatment were discussed. Circulars from provincial office were read and necessary action taken.

BHILAI STEEL PROJECT BRANCH—On the 7th June 1961, a farewell party was given by the members to Dr. and Mrs. Mekhtiev, the Russian doctors at Bhilai Steel Project. All other Russian doctors were also present. Mrs. Kalle, wife of Dr. N. L. Kalle, the Chief Medical Officer, Bhilai Steel Project, gave a present to the guests on behalf of the staff at B. S. P. Hospitals. Dr. Sen gave a suitable speech and Dr. Mekhtiev replied expressing his love and admiration for all the consultants and other colleagues here. Dr. Shrivastava thanked all the persons for the co-operation rendered.

A clinical meeting was held at Sector-I Hospital on 15-6-61 at 6-30 P.M. Dr. K. H. Desai, Paediatrician, B. S. P. Hospital presented a case of Congenital Heart Disease with Rickets. It was fully discussed and it was agreed to investigate the case further, and to review it after two months.

CHIKAMAGALUR BRANCH—The monthly clinical meeting of the branch was held in the premises of the hospital on 24-6-1961 under the presidentship of Dr. B. N. Narasimha Setty. Twelve members were present. Dr. B. Rama Rao, Resident Medical Officer, read case reports of Ovarian Tumour in a child of 6 years and mechanical Intestinal Obstruction in a man of 30 years operated successfully in the General Hospital. Dr. C. P. Krishna Murthy, Kalasa, presented a case of Bilateral Cervical Rib and read a paper on Family Planning.

DONDAICHE BRANCH—A monthly meeting of the branch was held on 21-5-61 under the presidentship of Dr. P. M. Kulkarni. The members condoled the death of the wife of Dr. H. G. Shah, a member of the branch. It was decided to arrange mass inoculation of Triple Antigen Vaccine in the community at the cost of medicine. It was also decided to open a dental camp for treating tooth troubles free of charge.

DOOARS BRANCH—The 19th annual general meeting of the branch was held at Chalsa Salbani Sangha Club, Chalsa, on the 21st May, 1961. 55 members attended the meeting. The following office-bearers were elected for the session 1960-61 : President—Dr. Nani Gopal Sen; Vice-Presidents—Dr. P. B. Guha Neyogi, Dr. N. C. Bagchi and Dr. S. K. Kundu; Hony. Secretary—Dr. D. K. Bagchi; Hony. Jt. Secretaries—Dr. K. P. Roy, Dr. S. N. Bhattacharjee; Hony. Treasurer—Dr. B. C. Sinha.

In the Scientific session of the meeting Dr. N. G. Ghattak read a paper on P. U. O. and Dr. K. P. Roy read a few case notes of Dermatitis.

FAIZABAD BRANCH—A meeting of the branch was held at the District Hospital at 7-30 P.M. on 10-6-61. Dr. S. K. Mukerji presided. Proceedings of the last meeting were confirmed. Central circular no. 35/60-61 dated 24-6-61 was read. Discussion on Prevention of Accidents took place. It was decided to inform the departments to follow the scheme helpful in the prevention of accidents. The proforma to be prepared by Dr. R. D. Dube and then after deciding in the meeting they should be sent to the heads of the departments concerned :—(Police; Information; Education etc.).

The secretary was directed to inquire about the news published in the National Herald dated 9-6-61 urging the recognition by the U. P. Medical Council of B.M.B.S. degree (Ayurved) for the purpose of recognition at par with M.B.B.S. under the U. P. Medical Council Act 1916. The members were deeply concerned over this matter, and desired to know the full details of facts at a very early date. If it is true, the state secretary is requested to take up the matter at the Provincial level.

FEROZEPORE BRANCH—An ordinary meeting of the branch was held on 6-5-61 under the presidentship of Dr. A. Suchdev. Dr. T. J. Garst, Orthopaedic Surgeon, Ludhiana, addressed the members and explained practical difficulties in dealing with common fractures through x-ray films and some orthopaedic cases.

GHAZIPUR BRANCH—The meeting of the Executive Committee of the branch held on 19-6-61 placed on record its deep sense of sorrow at the sad demise of (1) mother of Dr. J. B. Choudhury; (2) father of Dr. (Miss) Sohini Misra; (3) Dr. R. L. Agrawal and two sons (Uttarkashi) and conveyed its heartfelt sympathy to the members of bereaved family.

GULBARGA BRANCH—The 27th annual conference will be held in Gulbarga (Central Railways) in the last week of October, 1961. Further information may be had from the Organising Secretary c/o. The Secretary, I.M.A. Gulbarga.

HYDERABAD BRANCH—A meeting to condole the sad demise of Dr. Digambar Singh, an old and very active member of the branch who died on Monday, the 29th May 1961, was held at the IMA. Hall on 1st June, 1961. The meeting was largely attended and several members paid homage to the memory of the deceased.

In the series "Arasthu Memorial Lectures", a lecture by Dr. Jacob Chandy was arranged. Dr. Jacob Chandy who is a well known Neuro-Surgeon of Christian Medical College, Vellore delivered his lecture on the 18th June 1961 on "Patho Physiology of Abnormal Movements and Management." The lecture was attended by about 300 persons, members of the I.M.A. from the twin cities of Hyderabad and Secunderabad and several members of the Medical profession coming from districts as well. The lecture was followed by a dinner in the night which was attended by a distinguished and large gathering.

K.G.F. BRANCH—The monthly clinical meeting of the branch was held on 27-5-61 at the Civil Hospital, Robertsonpet. Sixteen members were present. Dr. B. N. Krishnamurthy presided. Dr. M. Punyamurthy presented a case of Tuberculous Abdomen. Dr. Rajendra Wats presented a case of a Tumour in the left thigh present since birth in a boy aged 19 years; lively discussion followed.

A special meeting was held at 3-30 P.M. on the 3rd June 1961 at the Civil Hospital. Twenty members were present. Dr. K. K. Hegde, Hon. Minister for Health, Government of Mysore was the Chief Guest of the evening.

KRISHNA BRANCH—With Dr. T. Narayanareddy presiding, the meeting held on 9-11-61, decided to start a Family Planning Clinic and authorised the secretary to take necessary steps.

Dr. K. Jayalaxmi, Civil Assistant Surgeon, Government Head Quarters Hospital, Masulipatam spoke on Childhood Tuberculosis and demonstrated a number of

x-rays. Dr. S. Anjaneyulu, Health Officer, Masulipatam spoke on the role of General Practitioner in Malaria Eradication.

With Sri J. N. Waghray, District and Sessions Judge, Krishna in the chair a symposium on Family Planning was held in connection with the Family Planning Day on 18-12-1961. The following were the principal speakers: Sri V. B. R. Krishna Sastry, Head of the Department of Economics, Hindu College, Masulipatam, spoke on Population and Family Planning; Sri Bh. Laxman Rao, Lecturer in Economics, Hindu College, Masulipatam on Socio-economic aspects of Family Planning; Sri Bh. Kutumba Rao, Head of the Department of Oriental Languages, A. J. Kalasala, Masulipatam, on Religious and Cultural Aspects of Family Planning; Dr. T. T .V. Subrahmanyeswara Rao on Methods of Family Planning; Dr. T. Narayanareddy on Publicity and Propaganda.

I.M.A. Family Planning Clinic was inaugurated by Dr. R. Achyutaramiah at 5 P.M. on 28-12-60. He described the role of the general practitioners in social medicine. Later Sri C. Balakrishna Sastry described the dangers of increasing population and its effect on the economy of the society. Dr. D. Subba Rao and Dr. D. Lata Devi also spoke on the need for Family Planning under the present standards of living.

Flag hoisting on the Republic Day the 26th January, 1961 was performed by Dr. R. Achyutaramiah at 9 A.M. who spoke about the role of the general practitioner in independent India.

On 19-2-61 the meeting commenced with Dr. T. Narayanareddy in the chair. Dr. K. Raghavendra Rao, Railway Divisional Medical Officer, Vizayawada spoke on Surgery in Thyroid Disease. He described the development of the Thyroid Gland, various diseases of the thyroid gland and their diagnosis. He described the various intricacies involved in the operations on the Thyroid gland.

With Dr. P. S. Chalapathi Rao in the chair a symposium on poliomyelitis was conducted on 12-3-61. The following were the speakers: Dr. V. Prahlad, Assistant Director of Public Health, Andhra Pradesh, Hyderabad gave his observations on and the epidemiology of poliomyelitis in the present epidemic; Dr. K. Venkataramastry spoke on clinical aspects of Poliomyelitis; Dr. T. Narayanareddy on preventive and curative treatment of Poliomyelitis. Later there was a film show on Diabetes Mellitus.

Earlier the members paid homage to late G. B. Pant, Home Minister, Government of India and Dr. B. S. Reddy by standing in silence for a few minutes.

In connection with the visit to the city, of Dr. Gharpure, Emeritus Professor of Pathology, Grant Medical College, Bombay and Dr. K. N. Dave, Research Assistant Polio Unit, Haffkine Institute, Bombay, a meeting was held on 27-3-61 with Dr. T. Narayanareddy, District Medical Officer presiding. Dr. Gharpure spoke on his experiences in the treatment of this disease and about the efficacy of salk vaccine. A number of questions were asked which Dr. Dave answered suitably.

A symposium on Acute Abdomen was held on 1-4-61 with Dr. P. S. Chalapathi Rao in the chair with the following speakers: Dr. M. B. Chinnapareddy, spoke on Etiology of Acute Abdomen, Dr. D. Subba Rao on Diagnosis of Acute Abdomen, Dr. D. Narayana Reddy on Treatment of Acute Abdomen. There was a lively discussions later.

MAHARASHTRA TERRITORIAL BRANCH—In the annual general meeting of the branch held at Nasik on 8th May 1961, during the 3rd Maharashtra Territorial Medical Conference, the following office bearers were elected for the year 1961-62: Dr. V. D. Sathaye as President; Dr. S. V. Deodhar (Nasik), Dr. M. J. Chidgupkar (Sholapur), and Dr. S. G Chopade (Miraj) as Vice-Presidents; Dr. Shriniwas N. Ranade (Poona); Dr. M. G. Bhide (Poona); and Dr. M. H. Sarode (Jalgaon) as Jt. Hon. Secretaries; Dr. V. M. Bahulkar (Poona) as Hon. Treasurer. Dr. C. N. Chandrachud (Poona) and Dr. G. K. Gan (Nagpur) were elected to the Working Committee of IMA with Dr. G. K. Kulkarni (Nagpur 1), and Dr. V. B. Dawalbhakta (Jalgaon) as alternate members.

MATHABHANGA BRANCH—The folowing are the present office bearers: President—Dr. M. C. Saha, Secretary—Dr. N. G. Kundu. The branch organised clinical meetings fortnightly. At the meeting held on 4-6-1961, Dr. S. N. Bose and Dr. N. G. Kundu discussed on Progressive Primary Complex of a child of 1½ year.

MEERUT BRANCH—A general meeting of the branch was held on 28-2-1961 at 4-30 P.M. in the premises of Dr. Bhupal Singh Medical Memorial Hall, Meerut. Twenty-eight members were present.

The meeting at the outset placed on record its deep sense of grief at the sad death of the wife of Dr. J. S. Chopra, a member of the branch on 16-2-1961. It was decided that a copy of the resolution be sent to Dr. J. S. Chopra. The proceedings of the last general meeting held on 27th December, 1960 was read and confirmed. Dr. J. L. Caroli spoke on Nephritis in Children. Major M. L. Suri and few others took part in discussion. It was noted that the Regional Medical Conference would be held at Moradabad on the 5-3-61. It was noted that the Muzaffarnagar Branch would hold a Symposium on Tuberculosis and its various manifestations on 7th March 1961 at Mazaffarnagar, and the Dehradun Branch would hold an academic symposium on Liver and Gall Bladder Diseases on the 19-3-61 at Dehradoon. Two new members were introduced to the house. A condolence meeting on the sad demise of Pt. Govind Ballah Pant, was held on 9-3-61 at 5 P.M. in Dr. Bhupal Singh Medical Memorial Hall, Meerut to condole the death of Pandit Govind Ballav Pant. Dr. R. R. Mital presided. Seventeen members attended. The following members spoke about the personality and statemenship of Pt. Govind Ballabh Pant: Dr. K. G. Mithal, Dr. S. B. Vyas, Dr. J. L. Caroli. The following resolution was moved: "We, the members of the Indian Medical Association, Meerut Branch, assembled this evening deeply mourn at the sad demise of our beloved leader Pandit Govind Ballabh Pant, Union Home Minister of India. By his passing away the country has suffered a terrible blow and U.P. in particular. Besides being a freedom fighter, he was senior statesman and great national leader. We all pray to the Almighty to bestow peace to his departed soul."

On the 3rd of March, 1961 at 8 P.M. the members and their families numbering more than 100 assembled in Association Hall to celebrate the Holi festival. There were music, dance and songs by the ladies and children of the members. Dinner was also arranged on the occasion. The Secretary Dr. S. P. Gupta showed 2 personal 8 MM colour movie films taken by him during his stay in U.S.A. for higher studies. The President Dr. R. Mital thanked the members and their families for making the festival a success.

The branch met on the following days. On 22nd April, 1961—Film shows and dinner were held. On 26th April, 1961—Visit of Dr. K. M. Lal, Director of Medical and Health Services U.P. Lucknow and his address on 'Our Health Problems'. On 8th May, 1961—Farewell to Dr. J. M. Mathur, Assistant Director of Public Health on his transfer to Allahabad. On 20th May, 1961, film show to the members followed by dinner.

A general meeting of the branch was held on the 26th of April, 1961 at 4-30 P.M. in the premises of Dr. Bhupal Singh Medical Memorial, Meerut. Members and special invitees numbering sixty were present. Dr. R. Mital presided.

First, the president and then the members welcomed and received the guest of the evening-Dr. K. M. Lal, Director of Medical and Health Services, U. P. Lucknow and a past president of the branch of the I.M.A.

Then the president while introducing the Dr. K. M. Lal and reviving his old ties with this branch requested him to address the house on 'Our Health Problems'. Dr. K. M. Lal gave a nice talk on the subject. He discussed the various preventive measures which have been taken for malaria, cholera etc. He indicated in his talk the progress made by the State in prevention and treatment side of health. The president also welcomed the hospital doctors who were special invitees to the meeting and requested them to join the Association.

A contributory dinner meeting was held on the 8th May, 1961 in Dr. Bhupal Singh Medical Memorial, Meerut. Dr. R. Mital was in the chair. To bid farewell Dr. J. M. Mathur Assistant Director of Public Health on his transfer to Allahabad, a contributory dinner in shape of dishes was held. The members with their wives enjoyed the buffet dinner and bid farewell Dr. J. M. Mathur.

A films show meeting was held on the 20th of May, 1961 at 8 P.M. in Dr. Bhupal Singh Medical Memorial Hall, Meerut. Dr. R. Mital presided. Members present were 60.

The following films were exhibited : 1. An effective Treatment of Burns, 2. Nephrosis in Children.

The general and World Health Day meeting of branch was held on the 7th April, 1961 at 4 P.M. in the premises of Dr. Bhupal Singh Medical Memorial Hall, Meerut. Twentyone members and 2 guests were present. Proceedings of the last General Committee meeting held on 28-2-61 were read and confirmed. Proceedings of the condolence meeting held on the 9th March, 1961 on the sad death of Pundit Pant were confirmed. Letter of Dr. K. G. Mithal in reply to the birthday greetings sent to him was read and Rs. 15/- so kindly donated by him for two copies of 'Antiseptic' were accepted with thanks. The president requested Dr. K. G. Mithal and Dr. K. L. Chopra to speak on Impressions of the First All Asiatic Conference of Paediatricians held in Delhi in January, 1961 which was attended by them. Dr. K. G. Mithal presented the impressions on Kwashiorkor, Marasmus, Diarrhoea and Infantile Cirrhosis of the Liver. Dr K. L. Chopra presented impressions on infective diseases in children.

The president requested the members to say something on the theme of World Health Day. Dr. J. L. Caroli and Dr. K. L. Chopra spoke on the various aspects of accidents and their prevention. It was followed by a 16 MM sound black and white film on Road Sense. Letter of Dr. Madan Mohan, Hony. Secretary, Dehradun Branch regarding Academic Symposium to be held on Sunday the 9th April, 1961 at Dehradun was read and members were requested to join the same.

Film show to the members and special invitees was held on 28th November 1961 at 8-30 P.M. in Dr. Bhupal Singh Medical Memorial Hall, Meerut.

Dr. R. Mital presided. Members attended were 40. The folowing films were exhibited. 1. Physiology of Adrenal Steroids. 2. The application of Triflupromazine (Siquil) in Surgery.

The branch was invited by the Secretary of Association for Moral and Social Hygiene in India to co-operate in the Programme of Seminar on V.D. held on 24th, 25th and 26th of March, 1961 in Nauchandi Mela Camp, Meerut. Following members of our branch took very interesting part in making the Seminar a success and addressed the Seminar as follows : 1. Dr. C. L. Chadha—Convenor, Seminar Sub-Committe. 2. Dr. D. P. Sharma, Civil Surgeon, Meerut—on Initiation of the purpose of Seminar. 3. Dr. Raja Ram Mital, president Meerut branch—On History of V.D. 4. Dr. J. L. Caroli—on True meaning of Health and V.D. 5. Dr. (Mrs.) Vijaya Datt—Functioning of V. D. Clinic. 6. Dr. C. L. Chadha (Major)—Whether the treatment of patient is the eradication of V.D.? 7. Dr. B. B. Sharma, Anti-Malaria Officer, Meerut—Preventive measures of V.D. 8. Dr. K. L. Chopra—Preventive measures of V.D. 9. Dr. K. G. Mithal—New Approach to control V.D. 10. Dr. S. P. Gupta—New Approach to control V.D.

On 7th March, 1961, six members of this branch went to join Symposium on 'Tuberculosis and its various manifestations' organised by Muzaffarnagar Branch. Dr. O. P. Goel one of the seniormost members of this branch read a paper on Radiological Manifestations in Pulmonary Tuberculosis.

MONGHYR BRANCH—An ordinary meeting of the branch was held on 16-5-61 under the presidentship of Dr. K. P. Mitra. Besides routine business the house accepted the recommendation of the building committee and nominated the President and Vice-presidents of both Central and State Branch for the year 1961-62. Members offered their sincere felicitations to Dr. N. Hassan on his being elected as Municipal Commissioner. Dr. K. P. Mitra read an article on "Family Planning" and discussed its different aspects. The meeting was followed by a dinner kindly arranged by the host Dr. Sankardas Bhattacharyya.

MORVI BRANCH—A meeting of members of Morvi branch was held on 28-5-61. Twelve members were present. Dr. D. C. Oza was in the chair. Dr. Kumbhani an eminent senior physician from Rajkot spoke on Cardiac Ischaemia.

A meeting was held on 18-6-61 to appreciate humanitarian services rendered in Eye-Camp organised locally by Dr. Sharma, Dr. Kaushik and Dr. Shah of Bihar Blind Relief Society. Sixteen members were present. Dr. C. T. Mehta presided. Dr. Sharma spoke on "Eye-diseases in General Practice."

MUZAFFARNAGAR BRANCH—In a meeting of the branch held on 18-5-61, it was resolved that B.M.B.S. degree should not be made registerable by the U.P. Medical Council. The candidates possessing B.M.B.S. degree should not be made eligible for recruitment in P.M.S. II services of the Uttar Pradesh Government since their academic acumen is far below the standard of candidates possessing allopathic qualifications i.e., M.B., B.S., L.M.P., L.S.M.F.

The annual report of the branch for the year October 1959-September 1960 showed that membership increased by 6 during the year, 11 general body meetings, 5 executive committee meetings, 10 clinical meetings were held during the year. The branch assisted the corporation in its drive against Diphtheria and Smallpox. The branch received a donation of Rs. 1,200/- towards the building fund of the branch from the Reception Committee of the X All-India Paediatric Conference, Nagpur. Dr. R. N. Dange donated Rs. 500/-; Dr. G. Sahu, Rs. 100/-; Dr. M. Y. Deo Rs. 20/- towards the Central Building Fund. The branch donated Rs. 53/- to the Vidarbha Relief Fund Committee. Dr. B. B. Kirtane president, Maharashtra Territorial Branch, Dr. H. N. Shivapuri, President and Dr. S. C. Seth, Vice-president IMA paid visits to this branch this year. WHO Day was celebrated on 7-4-60 in co-operation of local government authorities.

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NAGPUR BRANCH—The General Body Meeting of the branch held at Nagpur on 19-5-1961 deeply regretted the sad demise of Dr. Souren Sen Gupta of West Bengal and authorised the Hony. Secretary to convey their heartfelt sympathies to the members of the bereaved family.

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NAVSARI BRANCH—A meeting of the branch was held on 25-6-61. Dr. D. C. Sheth, Consulting Physician of Surat was the Chief guest. Dr. R. G. Desai, President of the branch welcomed the guest and Dr. B. H. Shah, Hon. Secretary introduced the chief guest to the members of the Union.

Dr. Sheth delivered a lecture on (i) Tranquillisers and (ii) Early Diagnosis of Coronary Occlusion. All recent tranquillisers introduced in the market by different laboratories were discussed with the merits of their own. After the speech questions were asked on these two subjects which were discussed and satisfactory answers were given by Dr. Sheth.

This branch is regularly arranging two meetings of their members in a month. In the first meeting interesting cases are presented by the local surgeons and consultants while in the second meeting learned authorities of medical profession are invited for a speech on subjects of different aspects of medicine.

PALGHAT BRANCH—On 3-4-1961 a combined committee meeting was held of the local branch and the IV Kerala State Medical Conference, Dr. K. S. Venkitachala Iyer presiding. On 30-4-1961 a general body meeting was held with Dr. K. S. Venkitachala Iyer as president. Accounts of the IV Kerala State Medical Conference was presented and passed. The meeting elected Dr. P. R. Parasurama Iyer as Hon. Secretary in place of Dr. T. K. Kesavan Nair who has been elected as the State Secretary, Dr. Parasurama Iyer was also elected to continue as the Treasurer, and Dr. P. N. Unnikrishna Nair was elected as the Joint Secretary.

Dr. T. N. Venkitachalam was elected as the State Council representative in place of Dr. R. Padmanabhan (expired). The general body then took up nominations of a President and Three Vice-Presidents to the Central I.M.A. and also considered matters arising out of the proposal to erect a branch building at Palghat.

On 21-5-61 there was a lecture meeting presided over by Dr. T. Madhavi Amma, when Dr. P. K. Mathew, delivered a lecture on Tuberculosis in Infancy and Childhood, after which there was a business session regarding the branch building.

This was followed by a dinner in honour of Dr. V. S. Gopala Krishnan on the eve of his transfer on promotion as Deputy Director of Health Services, Kerala, when speeches eulogising the services rendered by him were made by Drs. P. R. Parasuram Iyer, K. Madhava Menon, Lt. Col. G. R. Parasuram, P. N. Unnikrishnan Nair, T. I. Eapen, and K. Alikutty. Dr. V. S. Gopalakrishnan replied suitably, and the function terminated with a vote of thanks proposed by Dr. T. K. Kesavan Nair.

On 18-6-61 a lecture meeting was held, presided over by Dr. K. S. Venkitachala Iyer, when Dr. S. Srikantan delivered a lecture on Peptic Ulcer, Course, Complications and Treatment.

RAI BARELI BRANCH—A general meeting of the branch was held on the 6th June, 1961 at 7-30 P.M. in the District Hospital.

A general discussion on the various problems concerning the medical profession was held. The recent proposal of State Government to accord equal status to B.M.B.S. students was strongly opposed.

RAJASTHAN STATE BRANCH—The State Branch of Indian Medical Association has donated a running "Silver Trophy, a beautifully made *Murti* of Lord Dhanwantri" to the Medical N.C.C. of Rajasthan to be awarded to the best cadet every year for Social Service. This has been highly appreciated by His Excellency the Governor, Chief Minister, Health Minister of Rajasthan and the University Vice-Chancellor. The Army and N.C.C. authorities have felt particularly obliged and have expressed their great appreciation and gratitude on this gesture of encouragement they have received from the Indian Medical Association as they say that no where in the country the N.C.C. has received any such donation for medical cadets from a professional organisation. This has been awarded this year to Mr. Yash Paul in a special function on the occasion of the Sawai Man Singh Medical College Day celebration by the Governor of Rajasthan.

DR. YOSH PAUL, RECEPIENT OF THE SILVER TROPHY IN 1961

RANCHI BRANCH—The members of the branch assembled on 27-4-61 condoled the death of Dr. R. K. Choudhury, asst. surgeon, N.C.D.C. and an active and popular member of I.M.A., as a result of an accident. A copy of the resolution was sent to the bereaved family.

A meeting of the branch was held on 14-5-61 at M. G. Quddus's residence. Dr. K. D. N. Agrawala, eye specialist, Ranchi Sadar Hospital gave a talk on Common Infections of the Eye and their treatment.

ROORKEE BRANCH—Five meetings were held in the year 1961 up to 15th May, 1961. Three were held in the Military Hospital. Interesting medical and surgical (Both operated and non-operated) clinical cases were shown and demonstrated with skiagram. One meeting was held in the University Hospital which was presided over by Dr. R. C. Srivastava. Dr. I. S. Singh demonstrated a case of Fat Embolism and Dr. O. P. Gupta demonstrated an operated case of Cancer Penis.

One meeting was held at the residence of Dr. S. P. Bhatnager. Dr. R. C. Srivastava, presided. A case of Dysphagia was presented. In all the meetings most of the members were present and took part in the discussion.

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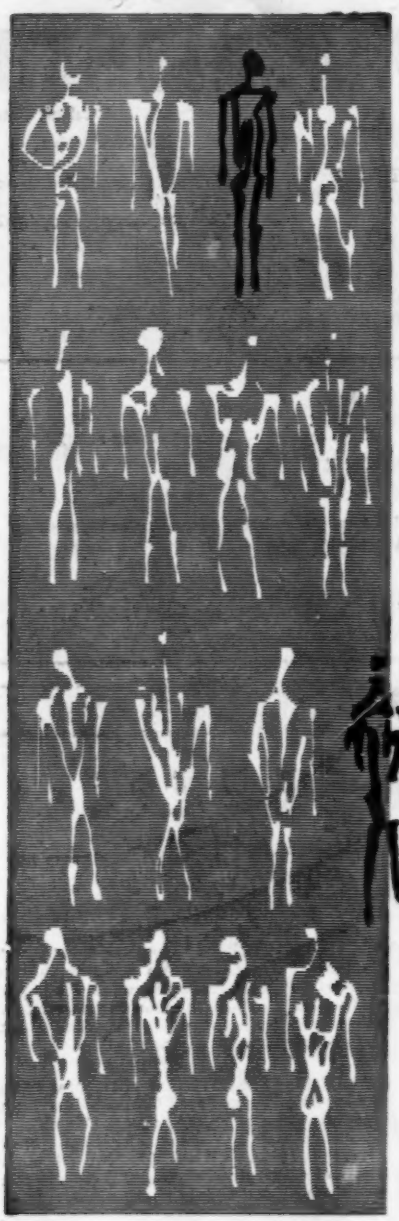

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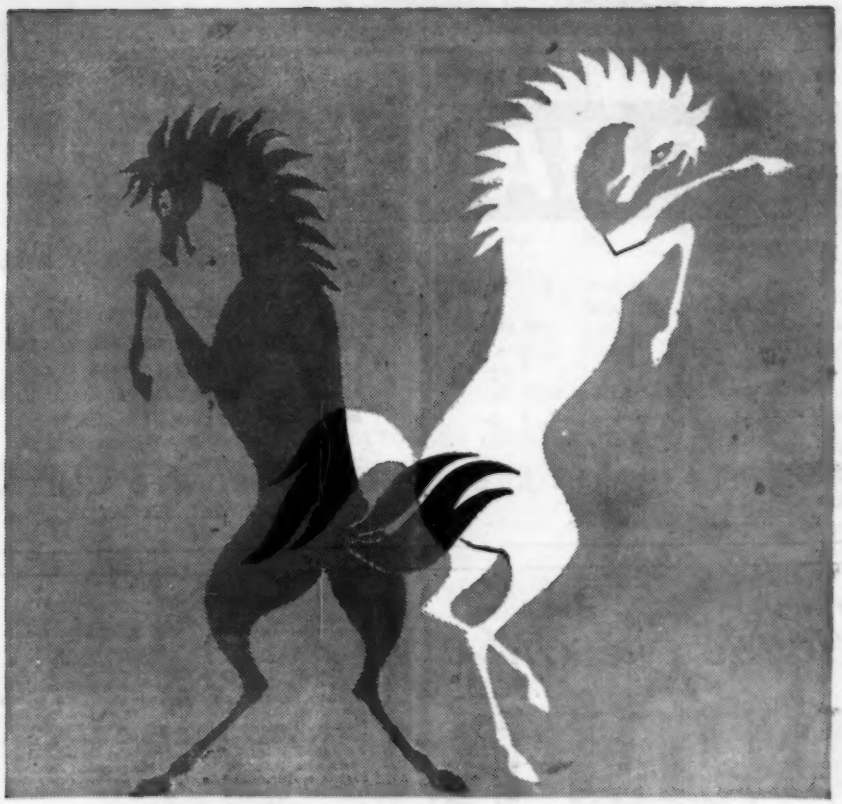

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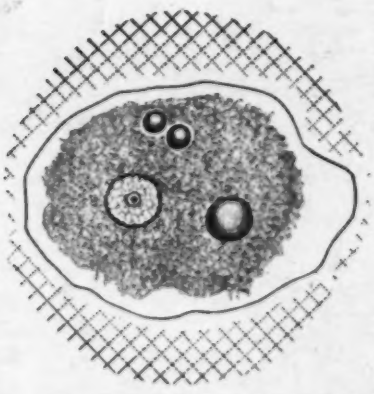

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